THE

WESTERN JOURNAL

OF THE

MEDICAL & PHYSICAL SCIENCES.

JULY, AUGUST, & SEPTEMBER, 1829.

ESSAYS AND CASES.

ART. I.—*An account of the Autumnal Fever of Georgia, from observations made during four years, in the counties of Jones and Baldwin.* By JAMES C. FINLEY, M. D. now of Cincinnati.

THOSE forms of autumnal fever which ravage the Southern States exhibit very different symptoms in different sections of the country. On the seaboard, they are attended with great determinations to the stomach, and that peculiar train of symptoms, (occasionally assuming the malignant character,) which accompany affections of this organ. On the borders of large rivers which overflow their banks, and in the neighborhood of extensive marshes, they are accompanied by long and severe chills, with great enlargement of the liver and spleen. In the middle region, or that section of country included between the low country and the mountainous region, they exhibit a modified character, and are generally attended with febrile symptoms of a more open and inflammatory nature. But notwithstanding this general ground of distinction, local and accidental circumstances may produce every variety of the disease in any situation.

The epithet Bilious, as applied to this species of fever, if properly restricted, and distinctly understood to apply only

to a prominent symptom, and not to the cause of the disease, is perhaps unobjectionable; and as it has been appropriated to that species of fever which proceed from marsh miasmata, it forms a distinctive appellation readily understood.

It is however to be borne in mind, that the liver is not the principal seat of the disease, but is affected only in common with other organs, and often in an inferior degree; and that the secretion of bile, so far from being universally increased, is frequently diminished, and sometimes entirely suspended.

The section of country from which the following remarks have been drawn, is situated between the Oconee and Oakmulgee rivers, about a hundred miles from their junction. The soil is fertile, the face of the country but little broken, and the streams of water, confined within shallow banks and descending by a slow and easy course, are liable to overflow and form marshes of considerable extent. This peculiarity in the features of the country is always to be observed in those situations which are subject to the various forms of autumnal disease. Where the soil is barren, or where the irregularities of the surface afford the streams a rapid descent, the situations may generally be considered healthy. Hence the mountainous region in the northern and western parts of the Southern states are almost universally healthy. The pine woods, which, (with the exception of the margins of water courses,) have a barren soil, are free from the annual visitation of intermittent fever. On the contrary, sections of country, which by their fertility of soil and advantageous situation, are peculiarly favorable to agricultural pursuits, are every year infested with autumnal fever. These facts are so familiar to every one acquainted with the topography and diseases of the Southern states, as to require no further illustration.

Remote causes of the disease.—The influence of marshes in producing Intermittent and Remittent fevers is so well known and so generally acknowledged, that it would be superfluous to advance any thing upon this subject. In addition to this, the decay of vegetable matter attendant upon the clearing

of new countries is supposed by many to be a fruitful source of autumnal disease. Facts are not wanting which apparently tend to favor this opinion very strongly. Mill ponds when first erected, filled as they usually are with the trunks and branches of trees, generally exert a more deleterious influence upon the health of the surrounding country than they do after a lapse of a few years. New countries, in which extensive clearings have been made, are frequently more unhealthy within the first five or six years after they are cleared than they are at any subsequent period. Green wood and other vegetable matter confined in unventilated situations, as the holds of ships, &c. are frequently a fatal source of malignant fevers. Judge Clayton, of Athens, informed me that at his plantation in Clarke county, on which from its elevated situation a case of autumnal fever was never known to originate, the family of his overseer, a few years ago, were successively seized with a bilious fever of a very obstinate nature, for the origin of which they could account in no other way but by the decayed condition of the logs of which the house was constructed. Other facts of a similar nature have fallen within my own observation; and upon a superficial view, appear to favour the popular opinion of the deleterious effects of vegetable decomposition. A closer investigation of the subject, however, will lead us to the conclusion, that this opinion is unfounded, or, at least, that the elements of vegetable matter in marshy situations acquire a malignity which is not necessarily attached to them.

Many of the facts stated above admit of a different explanation, and many circumstances can be adduced to invalidate the conclusion drawn from the rest.

1st. The operations of the animal economy are enveloped in so much obscurity, that when a number of causes concur in the production of disease, it is difficult to say how much importance is to be attributed to any one of them. In the investigation of the causes of bilious fever we feel this difficulty in its full extent. The origin and nature of miasmata, their mode of operation, and the influence of exciting causes, are so little understood that they open a wide field for con-

jecture and speculation, and when we have investigated the sources of this disease to the utmost extent, that our limited range of observation admits of, we must still believe that our conclusions are but approximations to the truth. Change of climate and long established habits, unwholesome provisions, the fatigue and exposure attendant on clearing and cultivating new lands, the want of many of the conveniences of life, and the melancholy arising from the want of society, and the loss of friends, must of themselves frequently prove an abundant source of disease among new settlers.

2dly. A country in its natural state covered with forests, abounds with marshes to a much greater extent than when it is cleared and cultivated, and it is reasonable to suppose that the consequences of exposing these marshes to the sun will be very unfavorable to the salubrity of the climate.

3dly. Marshes, when covered with vegetation sufficiently luxuriant to protect them from the influence of the sun, are comparatively innocent. Situations in the neighbourhood of mill ponds, which have suffered severely for a succession of years from fever, become healthy when the pond is drawn off sufficiently early to allow the rank vegetation usually covering such places to spring up before the commencement of the sickly season. Upon the same principle, sections of country which originally were very much infested with intermittent fevers, become healthy as a regular system of agriculture is introduced, and a considerable portion of the cleared land is converted into meadow and pasturage.*

4thly. The clearing of new land, in situations favorable to health is not necessarily followed by disease, and on every

---

* The climate of the northern and middle states becomes healthy as the country is settled, we presume from the causes we have just assigned. In the southern states, on the contrary, the system of agriculture appears to have a tendency to add to the disadvantages of the climate. Cotton and corn are the principal agricultural products of Georgia and the neighboring states; and these are planted for years in succession upon the same ground, almost without the intervention of any other crop. In consequence of this pernicious system of agriculture, the soil, deprived of the support of vegetable roots, and continually turned up by the plough, is carried by every rain into the neighboring low grounds to become, when exposed to heat and moisture, a fruitful source of disease.

large farm quantities of vegetable matter are left to decay in the vicinity of the dwelling without injury to the health of the inhabitants.

A long continuance of warm weather is necessary to give the exhalations of our marshes sufficient activity to produce disease. Hot and dry summers so far as my observations extend, are uniformly healthy. Marshes when perfectly dry are comparatively innocent. Heavy showers of rain during the summer, do not affect the health of the community, provided, they be followed for a few days, by cool, northerly winds. Those seasons are the most unfavorable to health which are distinguished by warm south winds, and a humid state of the atmosphere. If there be much rain under these circumstances the sickness is more general. Heavy rains during the sickly season put a temporary stop to the progress of disease; and the extent to which it may afterwards prevail, depends upon the subsequent state of the weather.

The appearance of frost does not, as is the case with the yellow fever, and is sometimes erroneously supposed to be the case with the bilious fever, entirely arrest the progress of the disease. The production of miasmata probably ceases at this time; so that strangers after this period are not liable to the fever, and probably, the system is so much invigorated by the change of weather, that with proper precaution there is less danger to those who have been exposed to miasmata.—But as the vicissitudes of the weather, and the change of temperature between the day and night are much greater; and very little care is generally taken to defend the system against these changes, the month of October is generally the most sickly in the year. The character of this fever is somewhat modified by this change in the weather, to which we shall refer hereafter.

The predisposition to intermittent fever remains, after exposure to its remote causes, for several months, even when the disease has not been excited into action. This is evident from the occasional cases of chill and fever we meet with du-

ring the winter, and from the remittent character of the inflammatory diseases of the winter. This predisposition probably ceases after a few months; vernal or summer intermittents very rarely appearing except in persons who have suffered from the disease during the preceding fall. Such a case I have myself never seen: when they do occur, which from the testimony of other physicians, I have reason to believe is sometimes the case, the predisposition is probably kept up by the delicate health of the patient.

But when the disease has once been excited into action, the predisposition remains much longer. A severe attack of the fever generally leaves the system very much deranged, and until the health is restored the individual is more liable to a new attack, at an interval perhaps of one or two years. By successive attacks of this kind, the constitution is so much impaired, that a change of climate is indispensably necessary for the restoration of health.

This predisposition to intermittent fever frequently follows the individual into other climates; and when exposed to an exciting cause, he is liable to the disease in the most pure and elevated regions, after an interval of many months.

When the health is completely restored, and the functions of the animal economy are all restored to their healthy operation, the system is in some degree fortified against a new attack.

It is a favorite remark with physicians, in speaking of protracted intermittents, to say "they are kept up by the influence of habit." The propriety of this opinion, to the extent that is generally entertained, is questionable. In all cases of protracted intermittents the system is very much deranged, the pulse is quick, the appetite irregular, the secretions defective or vitiated, the complexion sallow, and the spleen enlarged. The writer of these remarks had a severe attack of bilious fever in 1826, followed by occasional attacks of chill and fever, until the next summer, and for several months after he was apparently restored to his usual health, the pulse continued from 10 to 20 strokes above the healthy standard. These facts show that there is something in the way of con-

valescence much more serious than a diseased habit. The tendency of the operations of the mind, and the actions of the body whether healthy of morbid, to form such associations with circumstances with which they are accidentally connected as to be re-excited by the recurrence of those circumstances, is well known; but such a cause can hardly be supposed to operate when the disease is renewed by exposure, after an interval of several weeks or months.

It is generally known to the profession, that trees or the brow of a hill form a very effectual obstacle to the diffusion of miasmata. Those planters who have adopted the precaution of leaving a quantity of uncleared ground about their houses, frequently enjoy an almost entire exemption from the attacks of this epidemic. It is not so generally known to the public, that elevated situations in the vicinity of marshes are not always an effectual security against disease. From want of attention to this subject, individuals, in selecting elevated sites for the sake of health, have been much disappointed, when by sheltering themselves under the brow of the hill their object would have been completely accomplished.

The situation of Milledgeville affords a very good illustration of these remarks. The town stands on the west bank of the Oconee, about a half mile from the river, upon two elevated ridges of land, separated by a small valley, and running nearly parallel with each other. The streets on the brow of the hill next the river are proverbially unhealthy, and frequently suffer severely from fever, while the other parts of the town are comparatively healthy.

These general facts are so familiar to the profession, that a very short account of the state of the weather during the last five years will be sufficient to illustrate the positions I have advanced.

The summer of 1824 was unusually dry. Between the 4th of June and the 20th of August, there was scarcely a shower of rain sufficient to lay the dust. During this period with the exception of some cases of inflammatory fever, and a few cases of bilious fever in low unhealthy situations, the country remained entirely healthy. At the expiration of this

period, there fell a considerable quantity of rain, and the weather continued showery for several days. In a short time, sporadic cases of the fever began to make their appearance; many of them accompanied with dysentery.

The disease continued to spread until it received a temporary check from the appearance of the equinoctial rain in September. The country at this time was completely deluged with rain, and this again was followed by warm damp weather. Vegetation started forward with unusual rapidity, and the cotton before frost occurred grew to a size that is rarely seen in the most favorable seasons. In a short time the disease again began to spread; generally of the intermittent type, and frequently of an active inflammatory character, requiring very copious depletion. As the cold weather came on, many cases—among children whose clothing had not been accommodated to the changes of the weather, and among the laboring classes, who at this season of the year are alternately exposed, before sunrise to the dew of the luxuriant foliage of the cotton, and to the chilling air of the morning, and afterwardsthe sickening influence of an autumnal sun—assumed a low typhoid form which was frequently fatal.

The sickly season continued until the latter part of November when it gradually declined.

An observation made at this time,has been confirmed by the experience of each successive year, viz: that more children die of fever between the middle of October and the middle of November, than in any other month of the year; not excepting the ravages made by cholera infantum in June and July.

In 1825, May and June were excessively warm, although the heat of the weather was moderated by occasional showers of rain. During this period, the epidemic catarrh which had made its appearance in the northern states during the winter, and had been gradually making its way towards the south, appeared in Georgia, and prevailed very extensively. It was attended, in some cases, with high inflammatory symp-

toms, some of which, however, assumed the regular remittent type.

I expected that the symptoms of this epidemic would have been blended with the autumnal fever, but it disappeared in July before the commencement of the sickly season: and I did not observe that the few cases of fever which came under my observation received the slightest modification from this epidemic.

The remainder of the season was excessively dry, and as in the former year, the planter was compensated for the shortness of his crops, by an unusual exemption from disease. The equinoctial rains commenced on the 15th of September, and were followed as in the preceding year, by a good deal of sickness; generally mild intermittents, but a few cases were of a very malignant character.

In January, 1826, the epidemic catarrh again made its appearance, and spread very extensively, assuming every variety of that Proteus disease, and continuing to prevail during the spring.

The weather was exceedingly favorable to the agriculturist until about the first of July. After this, the occasional showers of rain were insufficient to keep vegetation in a flourishing state. Southerly winds prevailed in an unusual degree, and the humid state of the atmosphere was indicated by heavy fogs arising from the water courses. In June and July, inflammatory diseases, diarrhœa, and cholera, were very frequent. In the latter part of July, the bilious fever began to make its appearance, and by the middle of August, prevailed so extensively, as to invade almost every family exposed to the influence of its remote causes. Very heavy rains on the 10th, 11th, and 12th of September, followed by cool weather, and frequent showers, gave a temporary check to the disease, and very few new cases occurred, until within the last week in the month. At this time, it again began to extend; and so general was the sickness by the first of October, that it would be within the limits of a very moderate calculation, to say that two thirds of the inhabitants of exten-

sive districts were confined at this time. In October and November, many cases appeared in the typhoid form.

It is remarkable that notwithstanding the general prevalence of the disease, very few cases terminated fatally until late in the fall. It is, I think, very frequently the case in healthy seasons, that the proportion of severe cases is very large. If this be a fact, does it arise from the greater concentration of miasmata in particular situations, or from the violence of the exciting causes, necessary to produce the disease?

The diseases of 1827 presented nothing remarkable, except the number of intermittents, and inflammatory diseases, which appeared in the spring and early part of the summer. The summer was dry, and remarkably healthy, except in some particular situations of small extent. Late in the fall, some severe cases of fever were occasionally met with.

The winter of 1827–28 was unusually mild, and the spring forward, and favorable to vegetation. On the 16th of April, when the forest was in full verdure, vegetation was destroyed by a frost so severe as to kill many trees of considerable size. From this circumstance, many predicted an unhealthy season. In May and June the weather was excessively hot, and the labouring classes, in consequence of the destruction of the crops by the frost, were exposed to unusually severe labour. From some one, or from the combination, of these causes, inflammatory fevers of a very obstinate character, were frequent; especially among the negroes; and in some instances terminated fatally.

During the summer, more rain fell, than in either of the preceding years; but it was uniformly remarked that every shower was followed for several days by cool northerly winds. The autumnal equinox was attended by high winds, without rain, and in consequence, there was an exemption from autumnal fever, that had scarcely existed within the recollection of the first settlers of the country.

After this account, imperfect, but I hope on a subject so familiar to the profession, sufficient for the object in view; I shall proceed with the history of the disease. So much has been written on the subject already, that I approach it with

reluctance. It is however a subject of general complaint with the physicians of Georgia, that a work describing the peculiar character and treatment of this form of disease, is still a desideratum in the profession. Whether the disease assumes a different type, under different latitudes, or in different circumstances, I am not prepared to say; but I have certainly never seen a treatise on the subject which could qualify a stranger to treat it with success. It is my wish to confine myself entirely to its destructive peculiarities, avoiding all speculation, except what is necessary to establish that pathology, which I consider necessary to a correct treatment of the disease.

It is very important to make a distinction between those cases of inflammatory fever, which make their appearance early in the summer, and the remittent bilious fever arising from marsh miasmata. The former have no regular remissions, and are subject only to those exacerbations which usually accompany inflammatory diseases.

The latter is uniformly of the double tertian type, and the paroxysms of the fever recur with the greatest regularity; one paroxysm commencing in the morning, and manifesting a disposition to terminate in the evening of the same day; the other commencing on the afternoon of the following day and continuing through the greater part of the night, sometimes, until within a short time of the paroxysm of the next day.

There is a very marked difference in the character of these two paroxysms. That paroxysm which commences in the morning, is always preceded by a stage of depression, generally by a distinct chill; is attended by symptoms of greater congestion; with more determination to the stomach, brain, and other viscera; with more gastric irritability; and is far more violent and dangerous. The paroxysm which comes on in the afternoon of the next day, appears to consist more in simple nervous and febrile excitement. In mild cases, it is manifested simply by throbbing of the temporal arteries, restlessness, and anxiety. The memory and imagination of the patient are sometimes peculiarly active, revolving the past,

and anticipating the future events of his life, with a degree of celerity very unusual to him; and it is very difficult to convince him that so active a state of the intellectual faculties is the precursor of a more violent paroxysm, on the succeeding day. In more violent cases, the fever is not so frequently preceded by a cold stage, is of a more open and inflammatory character than on the preceding day, and is attended with nervous excitement, rather than oppression or gastric irritation. It has a tendency to continue through the night, and seldom terminates by free perspiration. This paroxysm has a tendency to anticipate, and to become more violent, so, that if the case be protracted, it is sometimes difficult to distinguish 'the sick from the well day.' The distinction however may generally still be made, by the tendency of the one paroxysm to terminate in the evening, and of the other to continue through the night.

The first paroxysm may make its attack at any hour of the day or night; but, it is this paroxysm which, in the regular course of the disease, comes on in the morning. It is with this paroxysm, that the disease terminates in health, or the patient receives the shock which eventuates in death. Unless under very active treatment, the disease never terminates with the paroxysm which comes on in the afternoon; hence, if fever occur in the afternoon of 'the well day,' unless it can be traced to some accidental cause of excitement, or if the patient pass a restless night, we may confidently expect a return of the fever on the next day. The odd days may therefore be said to be critical.

The fever commonly arrives at its height by the 5th, 7th, or 9th day; and if the system is not prostrated in one of these paroxysms, we may *generally* predict a favorable issue. If the case is protracted beyond the eleventh day, the fever is in most cases kept up by some extraordinary local irritation, and a regular crisis seldom takes place.

The fever generally returns with a great deal of regularity. In violent cases it sometimes anticipates, and when it is disposed to a favorable issue, it sometimes comes on a little later. A little attention however, will enable us to calculate the hour of its return with sufficient accuracy.

It is of the utmost importance that the physician should be acquainted with this peculiarity in the course of the disease. While ignorant of this, the succession of the paroxysms appears involved in the most inextricable confusion; whereas, they are attended with so much regularity, that the judicious practitioner, with proper attention, can calculate with the utmost confidence, on the accession and termination of the paroxysm; can inform his patient at one time, that he will pass a restless night; and at another, assure him that with the assistance of an anodyne he will sleep comfortably.

I have lately been much gratified, in reading a work published by Dr. Jackson, in 1792, from observations made while surgeon in the British army in South Carolina, during the revolutionary war, to find that his remarks on the subject of the type of the fever coincide precisely with mine. These observations were made in a newly settled country, the soil and locality of which were very similar to the one I have just described.* It is indeed to me a matter of surprise that this peculiarity, which is certainly familiar to every physician conversant with the diseases of this section of country, should have been so seldom described.

I have stated that the paroxysm which commences in the morning, (and this paroxysm principally demands our attention, as the one in which consists the violence and danger of the disease,) is always preceded by a stage of depression, generally by a distinct chill. It is to this stage of depression that I wish particularly to direct the attention of my readers, since from it the fever derives its peculiar character, and its principal danger.

The bilious fever may be said to be a combination of intermittent fever, with inflammatory or irritative† fever. Such

---

*I omitted to mention that this territory was purchased of the Indians in 1805 or 1806, and consequently may still be called a newly settled country. Whether the bilious fever assumes the same type in other sections of the Southern states, I am unable to say.

†By inflammatory fever I understand those forms of general fever which are kept up by local inflammation. By irritative fever those in which it is kept up by local irritation, or an irritable state of the general system.

is the predisposition to intermittent fever at this season of the year, that every thing which tends to disturb the healthy actions of the system, proves an exciting cause. Consequently, the chill is, for the most part, the first in the train of morbid action; although when the disease is called into action by causes which tend to produce an inflammatory state of the system, it may not appear as a prominent symptom.

The stage of depression probably proceeds from a defective circulation in the capillary vessels; a retrocession of the circulating fluids from this class of vessels, and a consequent accumulation in the interior veins, laying the foundation for venous and visceral congestion. The chill, by the operation of some mysterious law, probably by an effort of nature analagous to the reaction which takes place after exposure to cold, produces the fever. The fever in its turn, after it has effected the object for which it was intended, viz: the restoration of the capillary circulation, has a disposition to terminate by perspiration, producing the sweating stage of the paroxysm.

Such is the regular course of intermittent fever; but this termination is liable to be prevented by a variety of circumstances, which prolong the paroxysm, and dispose the fever to assume the remittent form.

These causes are, 1st, The irritability of the system at large, arising from the influence of the climate, and, particularly, from the long continued heat of the weather; or of particular organs, arising from accidental causes conjoined with the effects of climate. 2d. The irritation from the congestions which take place during the chill. 3d. Local inflammation, either supervening upon the general fever, or arising from its usual exciting causes. 4th. And perhaps we may add to these, the derangements which take place in the capillary circulation during the chill. These are sometimes so great that perfect reaction does not take place, and it is probable under these circumstances, that nature interrupted in her remedial efforts, does not bring the fever to a perfect solution.

That the chill is the cause of the subsequent fever, we infer, from their invariable connection; from the fact, that when

we keep off the chill we prevent the rise of the fever; that persons predisposed to chill and fever may, by exposing themselves to cold and thus producing an artificial chill at the usual period of its recurrence, bring on a return of the fever; and lastly, from the analogy of the effects produced by cold, where we find inflammatory action follow a state of the system very similar to the cold stage of fever.

The violence of the fever is not, however, strictly proportionate to the cold stage, because the fever is affected by a variety of accidental and constitutional causes, entirely unconnected with the chill. No one doubts that cold is the cause of inflammatory fever; yet who would pretend to predict the nature or violence of the fever, from a knowledge of the degree of cold to which the individual had been exposed.

That the fever proceeds from the chill, and not from local irritation, is evident from the fact, that in the greater number of those cases in which this irritation appears as a prominent symptom, it follows the fever and subsides in a short time after it. Thus, we observe the patient, who, during the paroxysm, has been tossing about the bed with all the distress attendant on gastro-enteritis, become calm as the fever goes off, and rest very comfortably until the accession of the next paroxysm. In those protracted cases of intermittent fever which are said to be kept up by the force of habit, the patient, immediately after the fever leaves him, eats his food with as good an appetite, and digests it with as little inconvenience, as the peasant who earns his bread by the sweat of his brow—facts that are certainly not easily reconcilable with much gastric irritation.

The stage of depression generally commences a considerable time before it manifests itself in the chill, and is indicated by a general defect of vigour in the system; languor; weakness; sensibility to cold; impaired sensation; sense of fatigue and aversion to exercise. At length it pervades the whole system and appears: On the surface, in the paleness, coldness and constriction of the skin, the impaired sensibility to irritants and impressions made upon the senses. In the muscles, by weakness, tremors, irregular action, and rigors.

In the stomach, by the nausea, sickness, vomiting, and insupportable anxiety.* In the internal surfaces generally, by a deficiency of their secretions. The increased quantity of bile, sometimes ejected from the stomach during the chill, forms an apparent exception to this general fact. It is to be remembered, however, that the liver is frequently the seat of great irritation from congestion and other causes, and thus is prevented from sympathising with the state of the circulation which prevails in other parts of the system. Further, the gall bladder is a reservoir in which the bile accumulates until it is required to assist in the process of digestion. This accumulation sometimes appears to be increased by a paralysis of the biliary ducts. For several days before the patient is confined, the bile is absorbed, probably from an obstruction of this nature, and carried into the system, tinging the skin and coats of the eye with its peculiar hue. The secretion of bile is very frequently diminished, and in violent chills sometimes completely suspended. A similar fact occurs in the cholera of the Indies; a disease which, in many respects, bears a very close analogy to the prostrate cases of autumnal fever. Lastly, this debility appears in the brain and nervous system, by the inactivity of the mind and the torpor of the senses.

The debility which attends this stage of fever is not the less real because it is not removed by stimulants. 1. Those stimulants do not indeed relieve it, which act primarily upon the heart; because they increase the action of the heart at the expense of the rest of the system, and thus increase those derangements of the circulation, under which the system is already oppressed. 2. Although the irritability of the system is diminished at the commencement of this stage, it increases when partial reaction begins to take place; and as those viscera will first receive the impression of stimuli, which are already too much excited, the general oppression may thus be increased. 3. Further, the debility is in a great

* To what cause are we to refer the thirst which accompanies the chill? It evidently proceeds from the stomach, and is accompanied with a peculiar sensation of internal heat.

measure owing to the interruption of the different functions of the animal economy, and, consequently, cannot be expected to yield to simple excitation of the vascular system.

Visceral congestion is the direct consequence of the recession of the blood from the capillary vessels. The spleen, the liver, and the brain, on account of the laxity of their texture, or the peculiarity of their circulation, are most liable to accumulations of this kind. The lungs are sometimes, but not so frequently affected. It is remarkable that when the chill is very distinct, the spleen is principally affected; but in those more dangerous chills, in which the sense of cold is a less prominent symptom, the engorgement takes place in more important viscera.

These local determinations deserve particular attention; for they hold so prominent a place in this form of autumnal fever, that they give rise to its distinctive symptoms. Every case of bilious fever may be said to be congestive, and requires a modification of the treatment adapted to this peculiarity. Congestion and inflammation are directly opposed to each other; the former bearing the same relation to the chill that the latter does to the fever. The balance of the circulation is disturbed in both. In the latter, there is a determination to the capillary vessels, increasing the sensibility of the system and the action of the heart; in the former accumulations take place in the veins, oppressing the functions of the viscera, and thus depressing the powers of the system. Under peculiar circumstances, however, either may imitate many of the symptoms of the other; and from a want of proper attention to this fact, inaccurate expressions, founded upon false analogies, have found their way into the writings of our most distinguished physicians.

As the history of the cold stage of intermittents is familiar to our readers, a few remarks illustrative of this peculiar form of fever will close our remarks upon this subject.

The chill is sometimes so violent as to prostrate the system by the mere debility accompanying it, without any particular evidences of congestion. Such cases are generally met with in old debilitated habits, or in persons who have been exposed

to great fatigue, while suffering from the debility of a former attack. These cases are sometimes attended with very great danger, and require the utmost care to preserve the powers of life until reaction takes place. Two cases have fallen under my observation, in which the chill, after continuing between four and five hours and inducing the greatest debility, has terminated without reaction by a free perspiration. During the whole of this period, the vital organs were free from any oppression that would indicate serious congestion.

In the typhoid cases which occur late in the fall, the symptoms are very different. The chill is long, but without rigors or a very distinct sensation of cold, and accompanied with every indication of impaired capillary circulation. The pulse is small, irregular, and very quick; the skin is flaccid, generally, but not always cold; pale or sallow; the urine is pale and scanty; and the secretion of bile almost entirely suspended. The nervous system is equally affected. The external senses are impaired; the mind is sometimes bewildered and confused, like that of a person suddenly roused from profound sleep; more frequently, the patient sinks into a state of stupor from which he cannot be roused. The reaction is here very imperfect; the pulse does not increase in fulness when the fever rises; nor does the skin recover its elasticity; and the extremities remain cold during the whole paroxysm. These cases are frequently and most unexpectedly fatal. The disease is so insidious and the patient so little disposed to complain, that the friends are not aware of his danger until he is irrecoverably prostrated. The chill is not always very distinctly marked in cases of this kind; it can never, however, escape the observation of the most inattentive practitioner.

Congestion frequently takes place before the cold stage is observed, and in plethoric or irritable habits, produces so much local irritation, that the stage of depression may even pass unnoticed. In common language, the fever is here said to rise before the chill. Though the symptoms of this stage are obscure under such circumstances, they may generally be recognized in the languor, oppression of the brain, the weakness and irregularity of the pulse; the coldness of the extremi-

ties; and the irritability of the stomach; very often too, where this stage has passed unnoticed in preceding paroxysms, the patient is suddenly prostrated at the very commencement of the paroxysm. The chill is generally accompanied by pain in the head, back and loins. The pain in the head sometimes appears to be a mere nervous affection, that is promptly relieved by the administration of a diffusible stimulant, or the application of a sinapism. More frequently, however, it arises from congestion, and continues throughout the paroxysm. The pain in the back and extremities is generally most violent in those cases which are attended with severe agues; and which are seldom dangerous. One fatal case, however, has occurred to me, in which the patient complained principally of excruciating pain in the ancles.

Occasionally I have seen the chill accompanied with great depression of spirits which subsided as the fever rose. In one case it returned on the 3d and 5th day, and continued through the usual period of the chill, (although this was prevented,) subsiding as before on the appearance of the fever. An intelligent friend, to whom I mentioned this circumstance, informed me that he had observed a similar phenomenon in the depression which follows severe wounds; the mental depression here also subsiding as inflammation supervenes. In the cases to which I allude it was attended with great hepatic congestion; a circumstance which may have had some influence upon the state of the mind.

Cases of bilious fever have been described as analogous to the congestive forms of typhus and fellow fever. If such cases do occur, I am disposed to think the congestion is subordinate to the chill, and is accompanied with so much real debility, that the bold practice of depleting, sometimes resorted to in the former diseases, for the purpose of relieving oppression, is totally inadmissible.

The history of the symptoms, we think, will justify the view we have taken of the chill, and the importance we have attached to it. The chills may be long and violent without much danger, because the derangement of the circulation is principally confined to the surface. The capillary vessels of

the stomach may be principally affected, and sickness and vomiting will be the prominent symptoms. The symptoms of congestion are sometimes more conspicuous than those of the chill; and the stage of depression is marked by stupor, difficult respiration, &c.; and in some instances, so much local irritation is produced that the symptoms of this stage are very obscure.

In other cases the whole system is simultaneously attacked, and the patient prostrated.

We have assigned four causes, which tend to protract the paroxysm, and dispose the fever to assume the remittent form.

1. The determinations to the viscera which take place during the chill, prove a source of irritation and tend to protract the paroxysm. Congestion, although in its nature the opposite of inflammation, generally produces local irritation. The symptoms of these local determinations are very apparent in every violent case of bilious fever, and may be said to impart to it its peculiar character. To these we are to attribute the pain in the head, stupor and convulsions; oppression of the chest; enlargement of the liver and spleen, and unequal distribution of heat and excitement. Hence the pulse at the wrist remains unaltered during the successive stages of the paroxysm, while the action of the carotids, and other symptoms give evidence of the most violent internal excitement. When these symptoms appear the remission is seldom distinct; the fever seldom terminates by perspiration, and tonics can rarely be administered with propriety.

2. The second cause to which we have referred, is the irritability of the system, which prevails at this season of the year, from the influence of long continued heat. From the influence of this cause, bilious fever is characterized by great irritation, rather than inflammatory action; and this peculiarity increases, for the most part, as the season advances.—Hence in violent cases, the pulse is always very frequent, and late in the season bleeding must be used with more caution, and exerts less control over the disease, than in other cases of inflammatory fever.

The influence of hot climates, in deranging both the functions and structure of the liver, is familiar to the profession. Accordingly, we find in almost every case of this fever, that the secretions of this organ are vitiated, indicating that it has become a centre of irritation, to which the physician should particularly direct his remedies, and against which he should always be on his guard.

The stomach, if we may judge from the capricious state of the appetite in warm weather, is not less affected by the climate than the liver. When this obvious indication of nature is counteracted by condiments and stimulating food, the sensibility of this organ is so much increased, that it is kept in a state of constant irritation. Hence the affections of the stomach and bowels so prevalent in the early summer months, and which continue until the system is habituated to the state of the weather, or new causes of disease have arisen to divert morbid action into other channels. Under these circumstances therefore, when we consider the sensibility of the stomach, and the irritation to which it is continually exposed from excessive and improper diet, it is not a matter of surprise that it should suffer very much in this disease. A peculiar affection of its mucous coat marks one of the most violent forms of the fever. It is tender upon pressure, excessively irritable, with great thirst, and that feeling of distress and anxiety usually present when its functions are deranged. The pulse is small and frequent, the skin pale, and frequently delirium also is present. Since this affection subsides with the fever, so far that bark may very frequently be freely given in the intermission, it is, probably, merely the result of general inflammatory action, upon an irritated and exquisitely sensible surface.*

---

* An affection of the stomach of a very opposite character is sometimes produced by the administration of calomel or tarter emetic; especially if administered during the chill. The distress, restlessness and anxiety are the same, but the prostration of strength is much greater, and the disposition to vomit incessant. It is less dangerous however, for if not relieved by warm water. it is readily controled by an anodyne. In a succeeding paroxysm this irritation, the effect of medicine or of the chill, frequently is followed by the inflammatory irritation described above.

3. Those organs which are the seat of the congestion, or of great irritation, in protracted cases, are frequently affected with local inflammation, especially if they are either constitutionally weak, or suffering from the effects of previous disease. The lungs, in those who have had repeated attacks of pleurisy; the stomach, in those whose constitutions have been injured by free living, or who have suffered from that species of fever which prevails on the seaboard; the liver and spleen, in those who have had intermittent fever in marshy districts.

In delicate females, who have passed the meridian of life, and whose constitution has been impaired by repeated attacks of fever, we frequently meet with an erysipelatous inflammation of the stomach. In addition to the symptoms usually attendant upon affections of the stomach, the whole alimentary canal is frequently affected by continuous sympathy; and the tongue is either covered with a brown fur, or is hard and dry as if it had been baked; or the whole surface of the mouth is of a florid colour, and very tender. When the bowels are affected we have serous diarrhea. These symptoms generally indicate a protracted case, the more troublesome, because it admits of no active treatment.—These unpleasant symptoms are sometimes produced by the injudicious administration of tonics.

The predisposition to bilious fever is so strong that all other diseases prove exciting causes. It may thus be combined with a variety of inflammatory affections, dysentery, puerperal fever, &c. When the causes of inflammation act very powerfully, the remissions of the fever are very obscure, until the inflammation is subdued. We have here, I think, a very evident departure from the adage; 'that epidemics compel all other diseases to obey their laws.'

4. We have assigned imperfect reaction as an additional reason for the protraction of the paroxysm. Upon this point we have some hesitation. In most of the cases, in which a cause of this kind might be supposed to operate, the fever may possibly be kept up by congestion. In those cases of intermittent fever which proceed from long continued exposure to cold and moisture, as in the case of labourers who are ex-

posed to the morning dew in picking cotton, the intermission is very distinct, and there is apparently no reason to suspect any latent cause of irritation; yet the fever terminates without perspiration, and tonics are productive of little advantage. Does there not appear under these circumstances to be an interruption in the regular process of nature, which prevents her from effecting a perfect solution of the paroxysm.

These are the causes so as we are able to trace them which tend to protract the paroxysms.

Accordingly, we may expect to find that the fever will assume more or less of the remittent character, according to the circumstances of the patient, or the nature of the exciting causes. Thus, if the disease has been excited by exposure to the cold evening air, we may generally expect the intermittent form of the disease. If exposure to the rays of the sun, or errors in diet, have been the exciting cause, we may expect the fever to approach the continued form. In individuals of plethoric habits, the first three or four paroxysms run into each other so much, that the remissions are scarcely perceptible; and under proper treatment, or simply from the tendency which the fever has to wear itself out, may terminate in an intermittent form. Other cases which are strictly intermittent at the commencement, from neglect, or improper treatment, become complicated with so much local irritation, that they approach very nearly to the continued form. If the first attacks have been properly and efficiently treated, I think, as a general rule, relapses are more apt to assume the intermittent form. In children, the remissions are less distinct than in adults, and if the fever is accompanied with convulsions, the regular type of the disease is so much interrupted, that the return of the paroxysms cannot be calculated with any accuracy.

The pulse, as might be supposed from the Proteus form of the disease, varies much. It is sometimes full, active, and strong; more generally, from the congestive character of the fever, it is small and weak, affording no satisfactory indication of the extent to which depletion ought to be carried. It is

frequently the same in every stage of the paroxysm; the small weak pulse which distinguishes the chill, continuing through the hot stage, and perhaps becoming more full and free, as the fever subsides. Under other circumstances, I have seen the pulse, during the chill, so active as apparently to justify copious bleeding, and continuing without any increase of strength, when the action of the carotids became so violent, that their pulsations were visible across the room. In violent cases, from the great irritability universally attendant upon them, the pulse is always very quick.

The state of the secretions is various. The tongue, at the commencement, is generally covered with what appears to be a secretion of white mucus; which is altered as the disease advances, according to any accidental turn it may take. During the chill, all the secretions are suspended, except the bile, which is frequently thrown up in great quantities. In some cases of great prostration this secretion is suspended also, and in others even of an active inflammatory nature, it appears to be defective; the most active cathartics producing no bilious evacuations for several days.

Delirium is a frequent attendant upon bilious fever, generally, however, accompanied with a disposition to coma. Although congestion for the most part has a tendency to produce coma, rather than furious delirium, yet I have seen a few cases in which the chill was ushered in with the wildest form of mania. A similar fact sometimes occurs as a consequence of congestion under other circumstances. Delirium generally attends great irritation of the stomach; and is distinguished by the distress, restlessness, and anxiety, which attended it.

Convulsions frequently accompany the disease in children. They generally appear in the hot stage, or just at that period when the chill is terminating in the fever; and in a few instances, I have met with them in the commencement of the chill. They are generally to be considered as a very alarming symptom. In a very few cases they accompany the fever in adults.

A severe attack of fever always leaves the system very much deranged. All the secretions are impaired; the skin is dry and harsh; the biliary secretion alternately vitiated and defective; the bowels constipated. If the case have been protracted, there is always a tendency to anasarcous effusions; and, if the chylopoietic viscera are enlarged, very frequently to ascites. The liver and spleen are often liable to a kind of slow inflammation which frequently accompanies the patient for many months. Irregular fever returns on the slightest excess and exposure. Sometimes the health is so much deranged that it can only be restored by a change of climate. All these evils are aggravated by an ungovernable appetite, which the considerations of prudence, the remonstrances of friends, and the authority of the physician, are equally ineffectual in restraining.

Treatment.

Bleeding.—The propriety of resorting to this remedy, and the extent to which it may be carried, depend very much upon the season of the year. Early in the season, when the pulse is frequently active and strong, it may be repeatedly called for, and resorted to with great freedom. As the season advances, and the fever assumes more of the character of irritation, greater caution is necessary; indeed the fever is beyond the power of the lancet, and the patient would sink under the loss of blood, before we reach the seat of the disease.—This evacuation is often highly necessary, when the pulse gives a contrary indication. Indeed, the pulse seldom affords an accurate criterion of the extent to which depletion is demanded; and we examine it, rather to determine whether the system will bear depletion, than with the expectation of obtaining any precise information, as to the extent to which it ought to be carried. On account of the oppression of organs essential to life, it is sometimes necessary to bleed to an extent that the system, in this deranged state of the circulation, is little able to bear; and accordingly, efficient means for equalizing the circulation such as sinapisms, and the warm bath, and sometimes diffusible stimulants, should be resorted to at the same time. Under these circumstances, the ab-

straction of 10 or 15 oz. of blood, by means of cups or leeches, will sometimes produce the happiest effect. In congestive cases, I have never ventured upon bleeding, until general reaction had taken place. When the stage of debility is so violent, that the system is prostrated, and the surface remains cold, the idea of deplétion cannot be entertained for a moment.

On account of the short duration of the paroxysm, perhaps we are justifiable in carrying depletion to a greater extent, than we would be willing to do under other circumstances. The paroxysms of fever resemble a hurricane, violent, but of short duration, through which if the patient can be conducted in safety, he has time to recruit his energies before the next attack.

Emetics.—These are peculiarly useful in bilious fever. As an evacuant of the morbid secretions of the liver, they are inferior only to calomel; and this effect they have, whether they excite full vomiting, or only nauseate. They relax the surface; promote the secretions generally; shorten the paroxysms; and frequently break up the disease. As they are occasionally, however, attended with unpleasant effects, some caution is necessary in directing their administration.

1. If high febrile action or much determination to the head exists, they should be preceded by other modes of depletion, or be given in divided doses at long intervals, that by the relaxation they produce, the increased determination to the head may be avoided.

2. The practice, recommended by some authors of giving them, either immediately before, or during the cold stage, with a view to prevent or shorten it, has, in the hands of ignorant practitioners, been attended with the most disastrous consequences. That reaction, and equalization of the circulation, which these gentlemen expect, never take place; and they produce great debility, obstinate vomiting, and spasms of the stomach.

3. They should be given with caution, when the stomach is very irritable. This irritability arises less from any irritating substance that an emetic might remove, than from the effects of the chill. It is generally increased by emetics, and

the most we can do with propriety is, to promote vomiting, by warm water, or infusions of eupatorium, or chamomile.

If this disposition to vomit be an effort of the *vis medica trix naturæ*, it is one which we would rather discourage than promote. For this purpose, a variety of aromatics; carbonate of ammonia; opium; lime water, and external irritants, are used. Sipping water, as hot as it can be borne in the mouth, frequently, has a very good effect.

4. Emetics should not be given, when from idiocyncracy, habit of living, or the debilitated state of the health, we have reason to believe they will operate unkindly. When it is necessary to give them under these circumstances, a full dose of some mild emetic should be given at once; or the system should be prepared for their operation, by an anodyne taken some time previously.

5. They are injurious in all cases in which the reaction is incomplete. In those typhoid cases which we meet with late in the fall, I have never known a child recover to whom one had been administered.

Emetics are frequently given in nauseating doses, in such a manner, as to make a very decided impression upon the stomach. Whatever may be the propriety of this practice in other febrile diseases, it is recommended in the bilious fever by the following considerations: 1. Emetics are useful in this disease by their specific operation; and here, it is probable that too much has been attributed to their mechanical effects. Nauseating doses of emetics, especially if their purgative operation is promoted, sometimes evacuate the secretions of the liver, and even relieve jaundice as effectually as if they had operated by vomiting. 2. The paroxysms of the fever are short, and disposed to terminate by free perspiration; by a liberal use of this class of medicines, we hasten this event, without the inconvenience of subjecting the patient for a length of time, to this unpleasant mode of treatment. 3. Whatever may be the rationale of the practice, it is confirmed by the universal experience of the southern physicians; who are in the habit of applying the same mode of treatment, with the most decided advantage, to the inflammatory diseases of the winter.

Cathartics, it is unnecessary to say, are indispensable in almost every case of bilious fever. We occasionally meet with cases, attended with so much prostration, that we are, for a time, prevented from resorting to them; but we can seldom dispense with free evacuations in every paroxysm, until the secretions from the intestines resume a healthy appearance. As a purgative, calomel, from its mild and effectual operation, and its influence over the secreting surfaces, is superior to any other cathartic. It should be given in doses of from ten to twenty grains, and, after an interval of five or six hours, followed by some active cathartic; and for this purpose, a combination of the more stimulating cathartics is generally preferred. After the bowels have been freely evacuated, the time of the paroxysm should be selected for evacuating medicines of every kind. When given at this time, they produce less debility; moderate the fever; and afford the patient, during the intermission, time to recover from the effects of the preceding paroxysm. When we wish the calomel to make a strong impression upon the system, it may be given in the morning before the paroxysm; and after the fever rises, the purgative above mentioned should be given in divided doses, so that they may operate effectually, with as little irritation as possible. This precaution is very necessary. When given in large doses, purgatives, although they produce copious discharges, create so much irritation, that the intestines are imperfectly evacuated. Hence the most active cathartics frequently have but a temporary effect in reducing fever, until by the administration of calomel, we succeed in discharging those vitiated secretions which appear to have escaped the operation of other medicine. Hence too, the saline cathartics, however actively they may operate, are the most inefficient of the whole. So much have I been impressed with the importance of this observation, that when I have observed calomel produce copious serous evacuations, I have frequently checked its operation, and repeated the dose with opium. We sometimes derive great advantage from giving opium with calomel. When the extremities are cold,

with other indications of imperfect reaction; when the system has been improperly reduced by bleeding, or other evacuations; and lastly, when we wish to obtain the peculiar effects of this cathartic in persons, upon whom from some idiosyncracy it operates unkindly, without subjecting the patient to the inconvenience which might result from its use.

We occasionally meet with persons who have taken so much calomel, that it no longer produces its specific effects, but runs quickly through the bowels, producing, like the saline cathartics, copious watery discharges. Upon some delicate persons, it produces the most distressing symptoms of gastric irritation; restlessness; anxiety; insupportable sense of sinking, even fainting. These effects are independent of the evacuations produced; frequently occurring in a short time after it has been received into the stomach. By allaying the excessive irritability of this organ, we give the calomel time to operate; and by means of other cathartics, can carry it off at our leisure.

If calomel is given during the paroxysm, from two to five grains combined with a nitrous powder, may be given, at proper intervals, until a sufficient quantity has been taken, to be followed by some other cathartic. This combination is a very powerful one; and certainly has an admirable effect in moderating the violence of reaction, and bringing the fever to a solution. In delicate constitutions, it requires to be used with some degree of caution, on account of the violence with which it occasionally operates.

The calomel is to be continued, according to the violence of the disease and the tendency to visceral inflammation, taking care, if possible, except in particular cases to which we shall presently allude, to avoid salivation, which is rarely necessary, always distressing both to the patient and physician, and frequently a serious obstacle to a rapid convalescence.

In cases attended with great congestion, when much depletion would be improper, it is freqently advisable to repeat the doses of calomel until they operate, without the intervention of other purgatives. It will rarely, under these circumstances, produce salivation.

After the combination of active cathartics to which I have alluded above, I have next preferred castor oil; which combines the property of operating effectually where we wish an active catharthic, and so mildly, as to be suited to the most delicate constitutions. With the operation of the saline medicines, I have been so much dissatisfied, that I have almost entirely proscribed them. Seidlitz powders, however, form a useful assistant to other medicine; and in mild cases, where the principal indication appeared to be to restore the secretions of the skin, I have given epsom salts with an infusion of snake root, perhaps with advantage.

Salivation may occasionally be resorted to with advantage. When the liver and spleen are inflamed; when the pain in the head is very obstinate, continuing during the remissions, so as to lead to the conclusion that the membranes of the brain are inflamed; and perhaps where the stomach and intestines are affected with great irritation; if these symptoms do not yield to the antiphlogistic treatment, combined with mercurial purges, it will be advisable to continue the administration of calomel until the mouth is affected.

There is said in inflammatory diseases to be a blistering point. The salivating point is still lower in the scale of action. Until we reach this point, calomel should only be given as a purgative; and after this, it will still be advisable to give it in full doses, combined, if necessary, with opiates, and repeated according to the urgency of the symptoms. Experience has proved that a salivation, brought about by full doses of calomel, exerts a much more decided influence over inflammatory affections, than when produced by smaller doses. The difference in its effects is almost as conspicuous as in bleeding from a large orifice in a sufficient quantity at once, or taking the same amount of blood at different periods.

Dr. Cartwright supposes that salivation, when produced by full doses of calomel, is not so apt to proceed to a distressing extent, as when produced by smaller doses. The same remark, I think, will apply to the combination of calomel with opium. I have given, in one instance, 20 grains of calomel

with 2 grains of opium, every second night, for three weeks, without affecting the mouth. On other occasions, I have given the same quantity of calomel with 1-2 grain of opium, at intervals of five or six hours, for two or three days, with a very slight affection of the mouth.

With respect to *cold water*, it is customary when the fever is high, to allow the patient to drink and apply it to the surface of the body *ad libitum;* except, perhaps, in a few cases, where from the delicacy of the patient, we have reason to apprehend unpleasant effects after the administration of some kinds of medicine. I have occasionally met with patients who affirmed, that cold was less efficacious in relieving pain in the head, than warm fomentations. In some cases in which the headache proceeds from congestion, this is probably the case; and if cold applications are continued after perspiration begins to appear, they certainly prolong the headache.

Blisters are not unfrequently a very important remedy. When the local affections depend upon congestion, and proceed from the effects of the chill, they are frequently so urgent as to require the most prompt methods of relief; and under these circumstances, sinapisms of a large size, are more speedy, and probably more efficacious, in their operation. But where the congestion has become fixed, and is combined with some degree of inflammatory action, as it generally is in such cases, they are too transient and superficial in their effects to be relied upon; and blisters are therefore to be applied, as soon as the reduced circulation and the state of the paroxysm, will justify. Very frequently, the sensibility of the surface is so much impaired by the oppression of the interior organs, that blisters may be applied during the paroxysm, at a very early stage of the disease.

When intermittent fever is accompanied with much irritation in the abdominal viscera, by applying the blister so as to obtain its full effect, at the period of the recurrence of the chill, we sometimes secure the double effect, of preventing the chill, and relieving the visceral affection. This time is not, however, on the whole, favorable for the application of blisters. Circumstances seldom permit us to wait for this period;

and if the blister is suffered to remain until the fever rises, it proves very distressing.

When the head is affected, they may frequently be applied with advantage, to the stomach or extremities. The stomach is always very seriously affected, and is more frequently the centre of diseased action than is generally suspected; and consequently, we will often find morbid action in distant parts of the system, promptly relieved, by remedies directed to this organ. In cases of great congestion, it is frequently important to multiply points of irritation, by applying blisters both to the stomach and extremities.

Since there is so intimate a connection between the chill and fever, it is always a matter of great importance to prevent the former. For this purpose, our most effectual remedy is *opium*, in its different modes of preparation. Many objections have been made to this remedy, from the injudicious manner in which it is frequently used; but by attention to the following rules, it will be found a most valuable remedial agent, which, in many cases, is indispensable.

1. It should not be given until the system is prepared for its use, by purgatives or emetics. There is so close a connection between the state of the viscera, and the surface, that medicine will seldom act favorably upon the latter, until the secretions of the former are restored, and all causes of irritation removed from their mucous surfaces. There are some exceptions to this rule, to which we shall presently refer.

2. It should not be given until the inflammatory disposition is subdued by bleeding, or other evacuants. When the cold stage is not distinctly marked, or so much irritation exists, that the fever rises before the chill, it should rarely be given. Some authors consider it equally useful, whether the fever is preceded by a cold stage or not. I have only to add, that I have never employed the remedy under these circumstances, except in protracted cases, in which the intermission was very distinct, and the fever, without any local affection, appeared to be kept up by general irritability. In such cases, Dovers' powder will frequently prevent the return of fever

3. It should be given in a full dose,* and sufficiently early, to bring the system completely under its influence before the time of the expected paroxysm. There is more danger from an inefficient dose than from a large one; because the former, while it does not prevent the fever, acts as a local irritant, without the benefit of that relaxation, and determination to the surface, which proceed from a full anodyne. When delayed until the chill makes its appearance, it had generally better be dispensed with; and other means adopted to carry the patient through the chill, as stimulants, under these circumstances, increase the subsequent fever, without relieving the chill. An exception may perhaps may be made of those cases, in which the system is prostrated under the chill. Very powerful stimulants are sometimes necessary, when the irritability of some parts of the system is so much increased, that they can hardly be administered with safety. A large anodyne may here be necessary, to enable us to reap the full benefit of more diffusible stimuli.

4. It will frequently be advantageous to combine the opium with small doses of ipecacuana or tart. antimo., when the stomach is not already too irritable. Dovers' powder is with many a favorite prescription; but as the mere taste of this medicine frequently causes its immediate rejection, I have generally preferred the combination of tart. antimo. with laudanum, as less apt to offend the stomach, and from its liquid form, more prompt in its operation.

5. The beneficial effects of the anodyne should be secured, by the administration of aromatic infusions, or diffusible stimulants. When the debility was very great, and it was deemed particularly important to prevent the chill, I have endeavored to anticipate the cold stage the more completely, by giving carbonate of ammonia or wine whey, sometime before the opiate.

If opium should fail to prevent the chill, it does not, when judiciously administered, have the effect of increasing the

*Some practitioners prefer giving it in divided portions, so as to keep the system under its influence until the period for the chill is past.

fever so much, as from theory we might be led to expect. It prevents congestion or renders the system insensible to its irritation, and disposes the fever to terminate more speedily, by a free perspiration. An unfounded prejudice against this medicine has arisen, from its producing such an unpleasant confusion of ideas during the fever, that although the paroxysm is shortened, it appears to the patient interminable.

The infusion of *capsicum* has lately acquired a very high reputation, from its efficacy in preventing the chill. A strong infusion is given in doses of a wineglass full every hour. It very promptly removes the sickness attendant upon the chill, and is probably superior to the carb. of ammonia under similar circumstances; but its beneficial effects have been much overrated. Upon this point, I can speak with the confidence of personal experience; having taken it freely under circumstances the most favorable for its administration, with no other beneficial effect, than that of relieving nausea; and if the statement of other physicians is to be credited, its indiscriminate use has been productive of a great deal of mischief. As it increases the force of circulation very little, it probably exerts an influence through the medium of the nerves of the stomach, by an operation very analogous to that of rubefacients applied to the skin. Its taste is not so acrid as we should expect; and the impression left upon the fauces is immediately removed by chewing a little bread.

Sinapisms are a very important means of preventing the chill, and relieving the unpleasant effects which accompany it. They should be applied of very large size, to the extremities and over the whole region of the stomach, about an hour before the return of the paroxysm, and suffered to remain until they make a decided impression. Where reaction is very imperfect, as in the typhoid cases which we meet with in the fall, and among the miserable inhabitants of low marshy districts, they are very useful, and sometimes form our principal resource. In removing the sickness, oppression, and stupor in these cases, they are truly invaluable. Dr. Daniel, of Savannah, has lately attempted, (and by the way with too much success,) to introduce pepper and mustard into general prac

tice, to the exclusion of almost every other remedy. I have not leisure to point out the absurdity of his theoretical reasoning; nor to shew, that from the cases he has advanced in defence of his practice, he has no right to extend it farther than the limits I have laid down.

I shall merely take occasion to remark, that although the peculiar nature of the bilious fever in the southern states, requires irritants, (*not blisters,*) to be applied to the skin more freely than in other febrile diseases; yet the fact that external irritants of any kind, during a state of high excitement, will certainly increase febrile irritation, is too well established to admit of argument. And again, the importance—the absolute necessity of calomel as a purgative in the diseases of southern climates, is so fully acknowledged by intelligent physicians of every variety of character, by the cautious practitioner as well as the bold innovator, that it requires the experience of more than one individual, to produce even a doubt on the subject. There are cases in which calomel cannot be used at the *commencement* of the disease; but a judicious use of this medicine will always expedite convalesence. If it were only to obviate the tendency to visceral disease, it would still be invaluable.

Upon what principle is it, that external irritants fulfil so many important, and apparently opposite indications; that they reduce inflammation; remove congestion; restore the balance of the circulation; and in the stage of collapse support the sinking powers of life? Is it not by a uniform mode of operation, viz: by imparting tone and increased action to the capillary vessels? If applied too early in inflammatory affections, they are uniformly injurious; but when arterial action is reduced, they enable the capillaries to throw off the load by which they are oppressed. In congestion, by the same mode of operation, they increase the action of the heart, and remove the obstacles to the circulation of the blood; and when the system is worn down by great excitement, they afford a new stimulus to sustain the powers of life, without unnecessarily exciting an organ, whose excessive action has already exhausted the system.

When a distinct intermission of a few hours takes place, after the stomach has been cleansed, we resort to tonics; and the *Sulp. of Quina* appears to combine the advantages of all these, with a freedom from many of the objections, to which the most of them are liable. It is easily taken, is quickly dissolved in the fluids of the stomach; and if it does not prevent the return of fever, will not remain, as is frequently the case with the bark, a permanent source of irritation during the hot stage. Some intelligent practitioners of great experience, have informed me, that they generally gave it without hesitation, whenever they discovered a distinct intermission, without discovering any inconvenience from its liberal use. I am not prepared to go so far; for I have certainly seen very serious inconvenience follow its administration, even when there was a perfect intermission of twelve hours, with a soft pulse, and a general relaxation of the surface. Some caution is undoubtedly necessary, therefore, in resorting to it.

If there be much oppression about the precordia, or any visceral irritation or inflammation, whatever, remaining during the intermission, it had better be avoided. If recent enlargements of the spleen exist, or if long standing affections of this kind have increased in size and induration, they will generally be found to keep up so much irritation, as to render it ineffectual: and when the fever does not terminate by perspiration, we may generally suspect some irritation of this kind to exist. Under these circumstances therefore, it will generally be more prudent to resort to other means to prevent the return of the paroxysm; or if we try it in urgent cases ineffectually, to discontinue its use. Opiates are, under these circumstances, generally safer and more effectual.

We sometimes meet with cases, of a mild nature, in which, during the intermission, the skin is dry and harsh, and the pulse small, and feeble, that are best treated by diaphoretics, warm infusions of eupatorium or chamomile, assisted by Dovers Powder, or carbonate of ammonia, and the warm bath. This diaphoretic mode of treatment would probably be the most effectual we could pursue, 'in the cold cases,' if we were called sufficiently early to anticipate the paroxysm.

By the subsidence of the paroxysm, the system is frequently left in a state of great debility. A full anodyne, to allay the excessive irritability of the system, is frequently attended with the happiest effects. It is not generally prudent to give it, until the fever subsides; but sometimes it will bring a protracted paroxysm to a termination. The liberal administration of wine whey, carbonate of ammonia, and even of the more powerful stimulus of alcohol, is frequently necessary to sustain the system, in the great collapse which sometimes takes place.

During convalescence, much prudence is necessary to reestablish the health. The state of the bowels demands constant attention. If there be not much fever present, warm stimulating purgatives as the tinct. myrrh, and aloes, &c. are very useful. But if these prove too stimulating, castor oil, or rhubarb, may be substituted. If any particular local irritation remain, alterative doses of calomel may be given, or occasional purgative doses of calomel may prove necessary.

Tonics generally do not promote convalescence much.—When resorted to, it should be in combination with some vegetable diaphoretic. The infusions of virginia or seneca snake root, taken in large quantities, are frequently used in domestic practice, for the purpose of removing anasarcous swellings; and under some circumstances with a very happy effect. Protracted intermittents are frequently broken up by emetics, a mode of evacuation which is recommended, by its invigorating, instead of debilitating the patient. A succession of mild emetics taken every second or third day, for some days, will frequently be very useful. Some cases accompanied by continual fever, so mild as not to keep the patient confined to the bed, I have relieved by a solution of tart. of antimo. in doses sufficient to operate upon the bowels. without producing nausea.

In the derangement of the general health which follows protracted cases, some physicians place great confidence in alkaline remedies, especially lime water. Hence it is customary to recommend patients to visit Tennessee, for the benefit of the lime stone springs, which abound in that state. Whether

it is from this, or from travelling in an elevated mountainous country, that so much benefit is derived, I am not prepared to say. From the good effects of this class of medicines in other dyspeptic diseases, I think it probable that the lime water deserves a portion of the credit.

Chronic enlargements of the spleen are often very troublesome. They are always connected with a bad state of health, and always disappear as the general health is restored. The rapidity with which they are dispersed is sometimes almost incredible. When accompanied with local irritation they should be treated with mild laxatives, rhubarb and aloes, and occasional purgatives of calomel; after this is subdued, alterative doses of mercury, tonics, gentle emetics, vegetable alteratives, and exercise as active as the strength will admit of. Dr. Drake's prescription of tonics with diuretics is a very happy one. This last class of medicines has a general effect upon the secreting surfaces, and this is precisely the kind of operation we wish. When inflammation has subsided, salivation is perfectly useless for the purpose of reducing the enlargement.

When other remedies have failed, or the patient is unwilling to resort to them, protracted intermittents are generally relieved by Fowler's solution. It is now, I believe, well understood to be applicable to protracted cases only, and to require during its administration as strict an attention to the state of the circulation as if the patient were put upon the use of bark. Without this precaution it will frequently fail. In a physician of my acquaintance who incautiously took 25 drops at a dose, it produced a slight salivation. Whether this was an affection of the gums similar to the effect produced by mercury, or an affection of the mucous membrane of the mouth, from sympathy with the impression made upon the stomach, I am not, at this distance of time, able to say.

In cases of dropsical effusion, when other remedies have failed, I have prescribed the tinct. of digitalis with uniform success. As the patients for whom I have found it necessary to prescribe it, have been of intemperate habits, or debilitated by disease and the operation of other remedies, I have commonly combined it with opiates.

The morbid appetite which follows bilious fever, I have been led to suppose, arises, frequently from such a depraved condition of the sensibility of the stomach, that it does not afford a criterion of the quantity of food that is necessary. Hence it is rather diminished, than increased by tonics. At the same time, the mind of the patient should be diverted by some light and agreeable occupation.

In conclusion, it may be remarked that the state of the bowels, during the convalescence, cannot be too carefully attended to; and that, as a general rule, emetics, in the sequelæ of bilious fever, display the best effects that, under any circumstances, we are to expect from them.

August, 1829.

ART. II.—*An account of a fatal case of Acute Negro Consumption, with the appearances on dissection.* By Dr. JOHN BENNETT, of Newport, Kentucky.

On the 26th of April last, Mr. H—— requested me to prescribe for his servant, a negro girl, aged 21 years, who had the usual symptoms of the vernal fever, peculiar to our section of the country. I prescribed a mercurial cathartic, with castor oil, and heard nothing more from the patient until the 2d of June, when, without visiting her, I directed them to repeat the cathartic. On the 4th, I was called to see her, and found her laboring under high fever, with pain in her head and back, tongue furred, and bowels constipated. I directed pills of calomel and scammony, to be given every two hours until they operated freely. They had the desired effect, and there was every indication of a speedy recovery. On the 26th, I was again called to see her, informed that her appetite had been good, and that she had indulged in eating every thing without restraint; that she had been permitted to visit the mineral well, distant one mile and half, and from thence she went to Newport, where she remained all

night, and that on returning home, her disease was much aggravated. At this visit I found her somewhat emaciated, with a furred tongue, cough, expectoration of mucus, and soreness in the epigastric region. I directed a blister over the pit of the stomach, a restricted diet, and mercurial cathartics. I saw her again on the 30th, at which time her appetite was much impaired, she vomited frequently, and her cough had become troublesome; she also complained of slight pain in her left breast. From this date until her death, which occurred on the 14th of August, my attendance was pretty constant. During the time, Dr. Drake saw her once, and advised moderate bloodletting, the blue pill, and a dilute solution of tartarised antimony with tincture of digitalis. Throughout this stage of her disease, she complained of little or no pain, was generally cheerful, and on every visit, told me she was mending fast. Her tongue was clean, bowels regular, and her cough less troublesome. During the whole course of her illness, she expectorated but little, and that was a thin mucus. Her appetite continued tolerably good to the last, yet she was reduced to a mere skeleton. She often complained that worms were crawling in her throat and choaking her.

On the morning of the 15th of August, I was permitted to examine the body. On opening the cavity of the abdomen, I found a considerable quantity of fluid of a deep yellow colour, which I presume derived its hue from a mixture of bile; the liver was unusually large and of the same complexion; on passing the finger over its surface, it was found loaded with small tubercles; on cutting into its substance, no ulcerations were discovered. The gall bladder was considerably contracted, contained but a small quantity of bile, which was of a yellow colour. The spleen was much enlarged, its complexion a shade lighter than in the healthy state. On making a section of it, I found numerous small ulcerated spots, which contained a thin white matter. The thorax contained upwards of a pint of fluid, of the same consistence and colour with that of the abdomen. The whole substance of the lungs was tuberculated. The tubercles were small, hard and dis-

tinct, having in no place suppurated. The heart was small, soft, and flaccid. A circular hole was found in the pericardium, large enough to admit the point of the finger; this hole appears to have given a free circulation to the fluid from the cavity of the thorax to the heart, *et vice versa*.

Three tumors, containing matter not unlike new cheese, were found adhering to the larynx. They were of an oblong shape; the largest about two inches in length, and its diameter equal to that of the thumb of an adult. These tumors, I conjecture, caused the choaking sensation of which she complained, and which she attributed to worms. The cellular substance of the abdomen and chest was tinged yellow; yet her eyes exhibited nothing of a jaundiced appearance; indeed, up to the period of her death, they bore that peculiar pearly whiteness, so uniformly observed in pulmonary consumption.

Among the morbid affections under which this patient labored, it is evident that jaundice must have constituted one; yet, why the eyes exhibited no tinge, I am unable to say. Is this exemption peculiar to the negro? I am inclined to think it is. I have no recollection of ever having met with a case of jaundiced eyes in a negro, though I have often met with well marked cases of hepatic derangement.

I presume that negro consumption is scrofulous tuberculation of the liver and lungs. A diseased action of the serous membranes simultaneously take place, and a consequent effusion of water into the thoracic and abdominal cavities. This effusion may destroy the patient before the tubercles have time to coalesce and suppurate, hence we may account for the mere mucous expectoration which we so constantly meet with in negro consumption.

So far as my observation extends this disease is generally called into activity, by catarrh, bilious fever, measles, or some other acute disease. Thus in the case just reported, the patient was attacked in April with remittent fever, which, with subsequent exposure and a full diet, no doubt, brought into action her tuberculous predisposition.

I will only add, that if I am not mistaken, I have seen the appearance of scrophulous tumours on the neck and other external parts of the body, followed by a great mitigation of the symptoms of internal tuberculation, and consequently the life of the patient prolonged.

August 16, 1829.

ART. III.—*Memoranda of a supposed case of Ruptured Uterus consequent upon a Partial Adhesion of the Vaginal Parietes.* By RICHARD F. BARRETT, M. D. of Greensburgh, Kentucky.

The subject of the following case, Mrs. S. of Barren county, in this state, died in the manner I am about to describe, in her 29th year, having been married 11 years.

During the first year of her marriage, she suffered two abortions; the first in the third month of pregnancy, and the second in the fifth or sixth. There were no unusual symptoms attending the first; but in the second, there was excessive hæmorrhage, and a retention of the placenta, for the extraction of which many forcible efforts were unsuccessfully made. These efforts, however, had the unfortunate effect of prolapsing the uterus, and of injuring the vagina so much, as to give rise to inflammation and sloughing of its coats. From unskilful management during the healing process, the walls of the organ were suffered to unite; and thus was formed the obstruction which ultimately occasioned death.

From the time of her second abortion to her last confinement, a period of eleven years, her health was variable. At length she again became pregnant, and on Tuesday night, Sept. 30th, 1828, was taken in labor. The pains were regular and moderate until Friday night, the 10th of October, at which time the liquor amnii was discharged. The head of the fœtus now could be distinctly felt resting on the abnormal vaginal septum. The pains after this increased in violence, and for twenty-four hours were so strong that the attendants

thought at every returning throe the obstruction would be overcome, and the child delivered. About 12 o'clock the ensuing night, Oct. 11th, the good old ladies who surrounded her, unfortunately determined to expedite the event by rolling the patient over and over on the floor, and then turning her feet *upwards*, and shaking her violently. This agitation, together with the strong uterine action that existed at the time, had, most probably, the unfortunate effect of rupturing the uterus; for immediately afterwards the head of the child could not be felt resting on the septum, the uterine pains ceased, hæmorrhage occurred, with sickness, and a sudden sinking of the powers of life. From this time until Monday the 13th, her friends expected her to die every hour; but at that time finding her better, or at least no worse, they determined to send to this place for my partner, Dr. Taylor. He reached the house that evening, and found her pulseless at the wrist, with cold extremities, and other symptoms indicating the near approach of death. Stimulants were administered through the night; but the next morning there was little or no amendment in her condition. Business requiring his attention at home, he was compelled to leave her, but directed a continuation of the stimulant plan, and in case there was a return of uterine action, or an increase of the powers of life, requested the husband of the lady to send for him and myself, promising that we would visit her, and either cut through the vaginal obstruction, or perform the Cæsarian section. On Thursday, the 16th, there was a return of circulation to the extremities, and a general warmth of the system, with wandering pains of the abdomen, back, hips, and thighs. These symptoms continuing through the following day, the friends felt encouraged, and accordingly sent for us. We found her undelivered, and evidently in the last hours of existence. She had been in labor nineteen days. She was in a clammy sweat, with cold extremities, a sunken, anxious countenance, hiccough, and a pulse just perceptible at the wrist. Believing, from the history of her labor, as given by the attendants, that a rupture of the uterus had taken place several days before, that the child was dead, and that from the exist-

ing symptoms she must inevitably die in a few hours, we of course declined all surgical assistance. On examination *per vaginam*, the cause that had prevented delivery, was immediately ascertained. About an inch, or an inch and a half, within the vulva, we discovered that a firm adhesion of the anterior and lateral walls of the vagina had taken place, leaving only an aperture of one or two lines in diameter, near the recto-vaginal septum. The exact longitudinal extent of the adhesion, could not be correctly ascertained; but from examination with the finger and probe, we judged it to be five or six lines.

Convinced that no human power could prevent the fatal termination of the case, and other professional business imperiously demanding our attention at home, we left the unfortunate woman before dissolution. We learned, however, that she died eight or ten hours afterwards, nineteen days after the commencement of her labor and seven days after the uterus appears to have been ruptured.

Residing 18 miles from the patient, we could not return to make a *post mortem* examination, and ascertain whether a rupture of the uterus had actually taken place, as well as the extent of the adhesion. But from the recession of the head of the fœtus from the vagina, the cessation of uterine action, the nausea, the hæmorrhage, and sinking of the vital powers, which immediately followed the severe rolling and shaking of the patient, we felt scarcely a doubt of the fact.

September 2d, 1829.

Editorial Note.

We cannot but regret with our friend and correspondent, that a dissection had not been made in this case. It would either have verified or falsified the prognosis of a rupture of the uterus. If it occurred at the time supposed, the continuance of the life of the patient for seven days afterwards, might be regarded as a remarkable circumstance. Under the supposition of its existence, we have thought the case worthy of being laid before the profession. It is deserving of publication, moreover, as a melancholy example of reck-

less and ignorant officiousness, on the part of the original attendants. The violence which led to an inflammation and coalitition of the sides of the vagina, must have been rude in the extreme; and yet it was surpassed by the outrages which seem finally to have lacerated the uterus. On the circumstances under which impregnation took place, the physiologist may perhaps reflect with some advantage.

ART. IV.—*A case of Epilepsy suspended by a Burn on the sole of the Foot.* Communicated by Dr. H. E. GREEN, of Greensburgh, Kentucky.

On the 5th of October, 1827, I was applied to for advice in a case of violent Epileptic fits. The subject was a colored man and a slave, about 48 years old, and of steady habits. It was about three months since the first attack; but he had complained for 12 or 18 months previously, of tension, uneasiness and pain about the umbilical region, espcially after eating a full meal. He had, all this time, done the work of a common laborer. The convulsions came on without any previous notice, at each full and change of the moon, and he would have from four to ten at each attack. When I first saw him, he was moderately corpulent, and looked healthy; he said, however, that he was in a very costive habit, and frequently went two or three days without an evacuation.

I bled him and ordered it to be repeated every 10 or 12 days for two months; inserted a large issue in the nape of his neck; directed the daily use of pills composed of aloes, ipecacuanha, and the blue mercurial mass, and prescribed a simple diet. This course was continued for three months without any sensible variation in the disease. He then took three grains of the nitrate of silver, daily, for two months, with no better success. He now fell into the hands of a *patent steam doctor*, by whose engine he was nearly destroyed.

At length all hope of relief was despaired of, when in the month of January, 1829, in a severe fit, alone, he fell into the fire and *burnt severely the whole of the bottom of the left foot. It*

did not get well for about four months, during the whole of which time he had no fits, but exhibited every indication of returning health and vigour. As soon, however, as it was healed, the fits returned.

Profiting by the hint afforded by this accident, I have put an issue into each ankle, the effect of which remains to be ascertained.

July, 1829.

ART. V.—*Notes on a case of Spina-Bifida.*—By THE EDITOR.

I am indebted to Dr. Bradbury, of this city, for the opportunity of becoming acquainted with the history and pathological anatomy of a recent case of Spina Bifida, some account of which is, perhaps, worthy of publication.

The patient, an infant daughter of G. G. a respectable mechanic, was born with a tumour near the junction of the lumbar vertebræ with the sacrum. It was nearly of the shape and size of half a hen's egg, when divided longitudinally. Regarding it as Spina Bifida, Dr. Bradbury directed a bandage round the body of the child, which was employed, as I understood, without a compress or pad to cause pressure, especially over the tumour; this continuing to grow, the bandage was at length laid aside. When I saw it, about the middle of August, four months after birth and three days before its death, the swelling was near three inches and a half high and two and a half in diameter; and resembled, in figure, a tin cupping vessel. Its parieties were vascular, of a rose color, semi-transparent, and in places extremely attenuated. The fluid which it contained would not recede on pressure.

Over the anterior fontanelle, and thence to the centre of the lower part of the os frontis, there was another congenital projection, which consisted of a fluid confined beneath the scalp. It was much less prominent than the spinal tumour, having grown at a different ratio.

The general health of the little patient had not been bad, though I found it considerably emaciated. It had suffered a

great deal of pain, particularly on being moved; and its mother had given it laudanum, daily, as a palliative. At first this medicine rendered it costive; but subsequently its bowels became regular, and its digestion was good. Its appetite was natural and it seldom vomited. When, not in pain, nor stupified by laudanum, it was cheerful and exhibited all the intelligence usual at its age. The sensibility of its lower extremities was unimpaired; and their motion rather greater than common. As to strength, it had sufficient to bear its own weight. It never had convulsions, nor any degree of paralysis in any part.

The secretion of urine was habitually deficient. When the tumour was compressed, after it had attained to a considerable size, an alvine dejection would immediately follow.

Two days before its death a spot of the cyst was so far absorbed, that the contents began to weep away, and the integuments to shrink up. This discharge was attended with an abatement of the swelling on the head.

The phenomena which preceded its dissolution, were described as being those of debility, without spasmodic action of any kind.

Post mortem examination.—The cranial tumour subsided when the spinal was punctured, and its contents suffered to escape. The scalp was not laid open, but it was easy to perceive, that great deficiencies existed in the anterior part of each half of the os frontis, constituting a wide and irregular chasm, from the front end of the sagittal suture to the ossa nasi. Through this elongated opening, either the brain must have protruded from the pressure of serum in the ventricles; or the dura mater only, from an accumulation, beneath it, of the cephalo-spinal fluid of Majendie.

On examining the sacro-lumbar cyst, it was found considerably shrunken and its parieties corrugated. The discharge from it was somewhat turbid, and a little offensive. The mother stated, that the first which issued on the bursting of the cyst, was of a green color. We removed the entire sack with the implicated portion of the spine. The aperture was the consequence of a deficient ossific action in the posterior

part of the two lowest lumbar vertebræ, the spinous processes of which were wanting. The opening was large enough to admit the thumb. The effusion was on both sides of the arachnoid. The spinal marrow had been drawn, in duplicature, through the bony aperture, so that when the sack was distended, it must have projected through that cavity quite to its outer extremity. Thus the origins of the cauda equina had been dislocated—they had, in fact, been dragged out of vertebral canal. This singular displacement arose from a morbid adhesion of the membranes of the spinal marrow to the integuments at the apex of the cyst, a union, occasioned no doubt, by the inflammation which the pressure applied soon after birth had excited; and which, when subsequent effusion took place, with a consequent elevation of the integuments, enabled them to carry with them a duplicature of the medulla spinalis, nearly in the manner that it might have been drawn out, by passing a ligature around it, and pulling towards the apex of the cyst. A portion of nervous matter could be traced quite to the integuments, but it was greatest near the aperture.

The membranes throughout the whole extent of this conical projection, but especially towards its apex, were in a state of inflammation—exhibiting a florid hue and masses of coagulable lymph.

To this inflammation, we should doubtless ascribe the sufferings of the child, and the locomotive propensity of the muscles of its lower extremities. That they should, under such a condition of the origins of their nerves, have retained their sensibility, and remained free from paralysis or spasms, are facts that deserve at least to be noted. The constant effect of pressure on the cyst in occasioning immediate alvine evacuation, is likewise worthy of preservation.

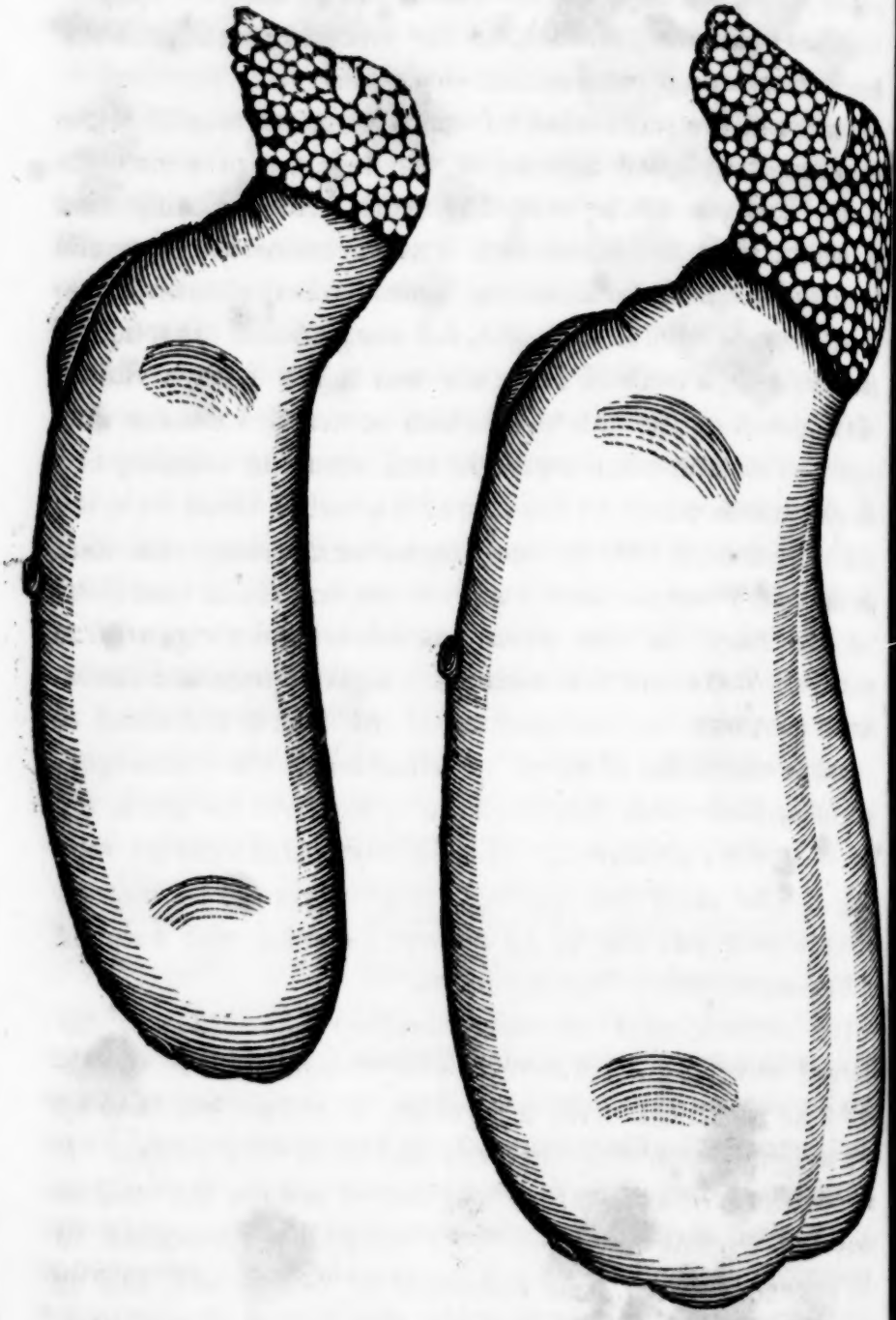
September, 1829.

ART. VI.—*An account of a singular case of Fœtal Monstrosity.* By Dr. JOHN COOK BENNETT, of McConnelsville, Ohio.

When residing in Circleville, the following extraordinary case fell under my observation:—

A lady, in the sixth week of utero-gestation, was frightened in the street by the fighting of two dogs, one of which was mad. This was in the month of April. Immediately after the event, she was seized with uterine hæmorrhage, which continued for 24 hours, and the same discharge returned, in a less degree, once a fortnight, till she suffered abortion in June. On the 30th of May, she was seized with a violent inflammation of the left eye, which returned for three successive days, and after an ineffectual resort to cupping and blistering, was cured by the loss of a quart of blood from the arm. On the 4th of June, the uterine hæmorrhage returned. On the 5th, I was requested to visit her, and found that abortion was likely to take place; as tolerably strong uterine pains recurred every few minutes. I gave opium and laudanum freely, but the contractions of the uterus increased in violence; and in the evening, the liquor amnii was discharged. In half an hour after this occurrence, or about 8 o'clock, the arm of a fœtus presented, and soon afterwards delivery took place. The child was perfect, and weighed 3 1-2 ounces. The placenta was thrown off about 11 o'clock, and weighed half an ounce more than the fœtus.

At 7 o'clock next morning, another placenta was discharged weighing 5 1-2 ounces, and brought with it, attached by an umbilical cord, a monster, of rather less than its own weight, resembling the body and head of a puppy. It was destitute of extremities and sexual organs, but had an anus and meatus urinarius. Its head, as represented in the annexed sketch, was composed of brains only, and in its outline was essentially canine. It had neither eyes, ears, nor mouth, but was marked with lines and spots indicating the situation of those organs. It was not subjected to dissection.



At 4 o'clock, on the same day, another monster, with its placenta, was thrown off. It weighed 6 1-2 ounces, and the placenta 6. It resembled the first in all respects, except that there was attached to its back a mass resembling liver, which extended, widening and thickening, from the neck to the sacrum, as represented in the larger drawing. When detached, it weighed one ounce, which was also the weight of the head. I was permitted to make a hasty examination of the thoracic and abdominal organs of this monster; and found them all natural, except perhaps that the liver was larger, than is common in a fœtus of such a size. It weighed two ounces. I could not obtain permission to preserve either of the monsters, or scarcely to examine them, so unpleasantly were the feelings of the patient and attendants, affected by the phenomenon.

The patient before delivery appeared like one in the sixth month of gestation. Her recovery was rapid.

I am aware that the account which I have given, will be read with incredulity, but am prepared to substantiate all that it contains.

September, 1829.

ART. VII.—MEDICAL JURISPRUDENCE. *Sequel of the case of John Birdsell, with remarks on Feigned Insanity.* By THE EDITOR.

To such as may have read in the last number of this Journal, the report of the trial of John Birdsell, some notice of what followed his conviction, may not be uninteresting. From the period of that event, to the day appointed for his execution, he remained in jail; at no time attempting, nor, apparently, meditating an escape. By a statute of Ohio, the Governor has the power of commuting the punishment by death, for perpetual confinement in the cells of the penitentiary, the convict subscribing a written assent to the exchange. A week before the day for his execution, several citizens of Cincinnati,—impressed with the opinion that he murdered his

wife when insane, and, therefore, that his execution would be a violation of the law; but, at the same time, considering that his liberation might be dangerous to society,—conceived the design of procuring a commutation of his punishment. Accordingly, they circulated a petition to the Executive, praying for the same, and obtained a respectable number of signatures; among whom were ten or twelve physicians, and twice that number of advocates, all of whom had made themselves acquainted with the facts relating to his state of mind, at the time he destroyed his wife. Along with this petition they sent a statement of the testimony. His Excellency granted their request, and the culprit is now in the penitentiary.

It will be recollected by those who have read the report of his trial, that after Birdsell was committed to prison, his insanity ceased. When arraigned, he admitted that he had killed his wife; but insisted, that undoubtedly he was deranged, for he never intended to commit such an act. In this state of mind, he continued for some time after his conviction, when he again began to show symptoms of derangement. Being told of this change, I had the curiosity to visit him. He conversed rationally on every subject, till I touched upon the cause of his condemnation and imprisonment, when he declared that he had *not* killed his wife, and that she was still alive. I told him the evidences of the fact, were too strong to be resisted; to which he replied, that a *combination* of persons had sworn falsely against him; that, if he had ever admitted that he murdered her, he was now convinced that he was mistaken; for she had lately, not only spoken to him through the walls of the jail, but actually visited his apartment several times. When I inquired why he did not detain her, he answered that she came in with other women, and there was always something in her appearance, that made him *doubt* at the time, whether it was she; but that after her departure, and he reflected on what he had seen, he became convinced that she was alive, and had been with him. However, he placed still greater reliance on the sense of hearing. This certainly had not deceived him; and he had heard her

speak almost every night for two or three weeks. She had been in the next room, opposite the head of his bed, and had conversed with him through the wall, on various subjects. In attempting to reason with him on the absurdity of denying that she was dead, he either felt or feigned a great deal of anger, and spoke violently and incoherently of those who had conspired against him.

Next day, I revisited, and found him tranquil. He conversed, temperately and rationally, on every subject, and made no allusion to his wife or his crime. When I started the subject, he went over a part of what he had contended for the day before; but was milder, less confident of the truth of his late observations, and in short, manifested much less insanity.

At my third visit, I found him rather more excited. On this occasion, while he was ignorant that a commutation of punishment had been granted, and when little more than a day would bring round the time for his execution, I proposed to him, in presence of the sheriff, the clerk of the court, one of his advocates, and some other gentlemen, to petition the Governor for an unconditional pardon; inserting in his petition, an admission of the fact, that he had killed his wife; but alleging that he must have been insane, or he could not have done so. The draft of a petition to this effect, was then read to him, by one of the gentlemen present. He rejected it with violence, declaring that it contained a lie, for which his wife would confront him at the bar of God, and for which his soul would be sent to hell. The gentlemen present urged him; proposing to forward with the petition, by a special messenger, the proofs of his insanity, at the time he committed the murder; and they expressed their belief, that a reprieve could thus be obtained. On pressing him, however, he manifested equal temper and obstinacy; seemed disposed to quarrel with all around him, asserted that his wife was not dead, and declared that he would sooner die, than subscribe his name to such a falsehood. Of all the gentlemen present, there was not one, as I assured myself at the time, who, from the countenance, manner, and words of the culprit, to say nothing of the *absurdity* of his refusal, could resist the conviction, that

he was sincere. I need scarcely say, that the proposition was designed to test the sincerity of his recent declarations that he believed his wife to be alive; but he could have known nothing of this design, as it was communicated to none, but one of his counsel.

Let us inquire into the conclusion which should be drawn from the facts which have been detailed.

They prove one of two things—that a partial insanity had returned upon him, or that he was feigning it. Which of these theories will best explain the facts? I cannot hesitate to choose the former.

1. It appears from the testimony on the trial, that Birdsell's propensity to drink, the indulgence of which excited *mania a potu*, was periodical, and returned four or five times a year. He was delirious and killed his wife early in March, soon after which, as in previous times, the delirium went off; but, in July, four months afterwards, he exhibited symptoms of a mild monomania.

Now I would submit to the profession, whether the state of his nervous system, which attended the other paroxysms, might not, and would not, probably, recur in a partial degree, when the usual period arrived? His periodical drunkenness, and subsequent mania, could not be ascribed to periodical temptation, for his opportunities and the enticements to drink were always the same; and if not attributable to these, they could only have arisen from the recurrence, at distant periods, of a peculiar state of the nervous system. The debilitating circumstances of low diet, darkness, silence, and damp walls, were, moreover, well calculated to reproduce a disease, to the cure of which they are well known to be unfavorable.

2. At two of my visits, when the culprit was at perfect rest, and unexcited by conversation, I found his pulse from 86 to 94 beats in a minute. I am aware, from observation, that in assigning an unnatural frequency of the pulse as an invariable concomitant of insanity, Dr. Rush has fallen into an error; for that state of the mind may co-exist with a natural pulse. Still, when a frequent pulse is present in cases of a dubious character, its value must be admitted; for it cannot,

like incoherent conversation, depend on the will of the individual.

While on this subject, as Dr. Rush's authority is deservedly great, in the United States, I will take occasion to add, that I have seen many cases of mania, monomania, and hypochondriasm, in which the pulse was not accelerated, and some in which it was unnaturally slow. Eighteen months ago I several times saw a patient with Dr. Marshall, of this city, a youth, who labored under mania, and had a pulse which, for the greater part of the time, rose very little above the natural standard; and at presest I am attending a young gentleman from Virginia, whose pulse is, habitually between 60 and 70, while his loquacity is incessant, and his locomotion so untiring and disorderly, as to require the restraint of a straight waistcoast.

3. It has been said that frequent spitting is a sign of impending madness. Of this I have myself known two examples. In my visits to Birdsell, I observed, although he was not a tobacco chewer, that he spit incessantly.

4. A disordered state of the senses of seeing and hearing, was a predominant circumstance in the delirium of Birdsell when he killed his wife, and in all the preceding attacks. Now the delirium which he exhibited in jail, was precisely of this kind. He thought that he saw his wife, he often heard her talk, and she even conversed with him on ordinary topics through the wall.

5. In his previous attacks, his derangement was, as far as we know, generally confined to one subject, and his wife was the principal person involved in it. I need scarcely remind the reader that this was the character of the delirium which he manifested in prison.

6. If Birdsell had feigned the delirium into which we are inquiring, he would not have restricted himself to such narrow limits, nor been so reserved in the display of his maniacal ideas. Above all, he would not have ventured to abate in its manifestations, to the degree which I witnessed on my second visit, as already related. He would have kept it up with increasing violence.

7. It is absurd to suppose insanity feigned without a motive. But what could have moved Birdsell to practice such an imposition? His trial was over and sentence of death had been passed upon him. After his apprehension, and when his defence was about to be rested on mental derangement, he did not attempt to simulate that condition of mind; but appeared quite rational, though it might, then, have been of advantage to him to counterfeit madness. It is not probable, then, that at a subsequent period, when he could in no way be benefitted by such a trick, he would have undertaken to practice it.

8. If his derangement had been pretended, why would he have refused to sign a petition for pardon, because it contained an admission that he had killed his wife; when he had repeatedly acknowledged the fact before the trial, and, if of sound mind, must have known that it had been put beyond all dispute? The proposed application for an unconditional reprieve, was not based upon his insanity *after* conviction, but at the time of the murder. He wished to live and was willing to petition the Governor; but when we proposed to introduce into the petition, a confession that he had murdered his wife in a fit of derangement, he refused with obstinacy and ill temper, because it came athwart his maniacal idea.

9. If Birdsell had refused the commutation of his punishment and been hung, it would have been regarded by all who knew the fact, as a proof of insanity; as his subscribing to the exchange has been pronounced an evidence of sound mind. But the conclusion drawn from this acquiescence is entirely unwarrantable. I have already stated, that his prison hallucination consisted in the belief,—excited by the testimony of his disordered senses,—that his wife was still alive; and consequently, that the combination, which in former paroxysms, he had so much dreaded, had sworn falsely against him. Now all this might have existed, and yet his mind been regular on every other subject; and hence he might have balanced between the gallows and confinement for life, while he believed both of them unjust. To deny this, would be equivalent to denying the *existence* of monomania or partial insanity, the most common form of mental alienation. Had his consenting

to the commutation turned upon the admission of his guilt, I have no doubt that he would have been hung.

From these different facts and considerations, I am convinced, that the prison delirium of Birdsell was not feigned, but real; but if it were the former, the conclusion attempted to be drawn from it—that he was not deranged when he killed his wife—is wholly unwarrantable. The proofs of his madness at that time are independent of what followed his condemnation; and can scarcely fail to carry conviction into the mind of any professional man, who will condescend to study them with seriousness.

To the fate of Birdsell—referring to himself only—I have always felt indifferent; but having been drawn, officially, to the study of his case, I have endeavored to make it of some value as a matter of Medical Jurisprudence; and am gratified to know, that what has been already published, has drawn attention, to a much neglected but deeply interesting subject. To the same end, I have written this sequel; which I hope will direct the inquiries of the younger members of the profession, to the subject of feigned insanity, concerning which the oldest physicians and jurists may often be perplexed. That Birdsell was a bad man, I have as little doubt, as that he killed his wife—not in a fit of drunkenness—but in a paroxysm of insanity. But a good man under a similar delusion might have done the same thing; and hence the importance of considering this last dreadful act of his social life on its own merits, and disconnecting it from his previous conduct. This should only have been referred to, in the absence of proof that he had committed the murder. When society shall come to punish a *special* act in one man and excuse it in another, its jurisprudence will no longer rest upon those principles of justice, which all are interested in maintaining. The law should not be allowed to cast its sword into the balance.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

—

ART. VIII.—*Lænnec on Diseases of the Chest.* Philadelphia, 1823.

Collin on the Stethoscope. Boston, 1829.

Review concluded.—Diseases of the Heart.

We resume the STETHOSCOPE, and propose to inquire into its powers in the diagnosis of maladies of the HEART.

There are few diseases which excite a more withering anxiety in the patient than those of the heart. This seems to arise, principally, from three causes. First—The sympathies and functional dependencies of the other organs upon this great central engine of the circulatory system. Secondly—The known irremediable character of most of its organic læsions. Thirdly—The obscurity in which the just conception of the patient, involves the particular nature of these structural derangements. Every physician, therefore, should consider himself called upon to study them in all the modes which accident, clinical observation and inventive genius have devised for their illustration. Much of the darkness which once hung over them, has been dissipated within the last 20 or 30 years; but this dissipation is not to the amaurotic, the purblind or the comatose—the sleepers and dreamers of the profession—who open their eyes, only when they hear something like the metallic tinkling (*tintement metallique*) of Lænnec; and then direct them upon the folios of their ledgers, instead of the pages of that distinguished physician and the writers of his school. No, to all such, the streams of light which have been let into the chambers of the heart disclose nothing, and the sounds which its troubled movements send forth, are but noise:—they practice no *auscultation*, but that which informs them when an applicant has given *pulsation* to their knockers; and

listen attentively to no instruction, but that which guides them to the patient's house.

To those, however, who look more to the means and less to the end—the final end—of their labors; who think nothing in the study of the profession below their notice, nor above their comprehension—although it may really be; who augment their efforts, when the difficulties augment; who delight to explore the hidden recesses of the system, because they are hidden; and feel 'conscience-bound' to bestow great attention, on whatever deeply interests their patients;—to this most respectable minority, the writings of Corvisart, and Allen Burns, and Lænnec, and Collin, and Johnson—with their collaborators—present in relation to the heart, enough to give precision to their diagnostic inquiries, and a character of science, if not of success, to their prescriptions.

In every individual belonging to the higher ranges of the animal kingdom, there are two organs, which exert on all the rest a sustaining influence so direct and immediate, that to wound them, in general, occasions speedy death. These are the *medulla oblongata* and the *heart*, both of which are, therefore, placed far beneath the surface, and surrounded by bony parieties. In thus guarding them from external violence, Nature has so disposed of them, as to throw many difficulties in the way of our clinical investigations. Our object is to inquire by what means those which relate to the *heart* are to be overcome.

In common with other organs, the HEART and its membranes are liable to inflammation and the various consequences of that morbid state. But in addition to these, its muscularity, cavernous structure, and mechanical functions render it obnoxious to numerous læsions, which are seldom met with in other parts of the body. Until the time of Baron Covisart, the diagnosis and pathology of these maladies, were but little understood; and even the last results of his inquiries left numerous *desiderata*. Another means of diagnosis was, indeed, required; and this has been supplied by Lænnec in the invention of the STETHOSCOPE.

After an observation of the symptoms, the chief reliance of Corvisant was upon Percussion;—a method not unworthy of

adoption; but still more inefficient in the diagnosis of cardiac, than of pulmonary affections. It is possible, however, without the auscultation to establish the existence of *a* disease of the heart. Nothing in general is easier; but to determine its specific nature is the task; and without the aid of the Stethoscope we venture to pronounce that this in general is impracticable. The Cylinder then is an instrument of particular rather than general diagnosis, and therein consists its value.

But let it never be supposed that it will afford either particular or general information to any and every one. The fact is far different. Practice and experience on the movements of the heart, *in health*, are indispensable to a correct estimate, by the instrument, of the condition of that organ in disease. The physiological movements must be well understood, before the pathological can be appreciated. Hence we must begin with the former and end with the latter; and we must not limit our experiments to a single subject; but by trials on those of all ages, of both sexes, and of every temperament and condition, become familiar with all the modifications of sound and impulse, which the healthy organ is wont to impress upon us. In the course of these observations, we shall be struck with the fact, that the heart, in different persons, has quite as great a variety of movements, as, in figurative language, it exhibits of moral affections; and many of these might be mistaken for diseased actions, to the discredit of auscultation and the shame of the profession.

On the physiological movements of the heart, as indicated to us by the Cylinder, Lænnec is ample and original. His treatise should be read by all who aspire to the use of that instrument. Collin, with a happy faculty for condensation, has given us a brief and lucid view of this part of the subject; which we shall present our readers, to enable them by the practice of physiological, to become well prepared for pathological auscultation.

Natural Phenomena furnished by the Heart.

These may be divided into four classes, and comprehend; 1st, The extent of the heart's pulsations; 2d, The shock which they communicate; 3d, The noise which accompanies them; 4th, Their Rhythm

1st. *Extent of the palpitation of the heart.* In a healthy man of a moderate degree of plumpness, whose heart is of regular proportions, the beating of the heart can only be felt in the precordial region, that is to say, the space comprised between the fifth and seventh sternal ribs on the left side, and under the lower part of the sternum. The motions of the left cavities are felt in the first point, those of the right cavities in the second. When the sternum is short, the pulsations are still sensible in the epigastrium.

In very fat persons, the pulsations of whose heart cannot be felt by the hand, the space in which they can be detected by the aid of the cylinder, is sometimes limited to a surface of about a square inch. Very thin persons, with narrow chests, offer the opposite disposition; the pulsations of the heart have more extent, and may be felt in the third or even three-fourths of the inferior part of the sternum, sometimes under the whole of this bone, in the left superior part of the chest as far as the clavicle, and even beneath the right clavicle.—When the extent of the pulsation is limited to the points just mentioned, in persons such as we have pointed out, and they are less sensible under the clavicles than in the precordial region, the heart is still in good proportion.

2d. *The Shock.* I understand by shock the sensation of impulse or percussion against the ear of the observer, arising from the pulsations of the heart. It is distinct with the cylinder when the hand applied upon the region of the heart can perceive nothing. This shock is very considerable in a healthy man, particularly if tolerably plump. It is felt most in the precordial region and lower half of the sternum, and always with most force between the cartilages of the fifth and sixth ribs, the part corresponding to the point of the heart. Its force varies greatly, according to the constitution of the individual; it is therefore difficult to refer it to a uniform type.—Practice teaches us to distinguish whether it be more or less intense than it ought to be; it should be rather less for the right ventricle than for the left.

3d. *The Noise.* The alternate contractions of the different parts of the heart return a sound insensible in the healthy state, but easily perceivable by the cylinder, however small may be the strength or volume of the organ.

In the natural state this sound is double, and each pulsation of the heart corresponds to two successive sounds.

One clear, abrupt, analogous to the sound of the clapper of the bellows, corresponds to the systole of the auricles; the other more flat and prolonged, coincides with arterial pulsation, as well as with the sensation of the shock mentioned in the preceding article; it is produced by the contraction of the ventricles.

The noise of the right cavities is heard at the lower part of the sternum; that of the left cavities between the cartilages of the ribs. It is always stronger in the precordial region than in the other points of the chest, where it may become developed in persons, who, though otherwise healthy, have a heart with very thin walls. We observe

also in them, that the sound of the auricles is more sonorous under the clavicles than that of the ventricles, which does not exist in the precordial region. In persons in whom the pleura and anterior border of the lungs is prolonged before the pericardium, the noise of the auricle is duller and more obtuse than that of the ventricles, without ceasing to be distinct. That depends without doubt on its being masked by the murmur of respiration, or by that produced by the air pressed out from this portion of the lung, by the heart's pulsation.

4th. *Rhythm.* We understand by the term Rhythm, the order of the contractions of the different parts of the heart, as they are heard by the cylinder, their respective duration, their succession, and general relation to each other. In a healthy man, whose heart is in a state favorable to the performance of all its functions, at the moment in which the artery strikes the finger, the ear applied upon the cylinder is gently raised by a movement of the heart, isochronous to that of the artery, and accompanied with rather a dull sound; it is the contraction of the ventricle. Immediately after, and without any interval, a shorter, louder sound announces the contraction of the auricle; no movement sensible to the ear accompanies this sound. An interval of repose succeeds to it. This interval, although short, is well marked. After it a new complete contraction of the heart is perceived.

The respective duration of the contraction of the auricles and ventricles appears determined with sufficient precision as follows. Of the total period taken up by a complete contraction and repose of the heart, a third to a fourth is occupied by the systole of the auricles; rather less than a fourth by the absolute repose; the rest by the contraction of the ventricles. These relations exist, whatever be the swiftness or slowness, the frequency or rarity of the movements, when the organ is healthy and well proportioned. pp. 33–37.

Having by repeated trials become familiar with the normal movements of the organ, the practitioner has acquired a standard of comparison for the abnormal, and may then commence their study. To advance prosperously in this, he should seize every occasion that may offer, and with industry and perseverance, ascertain and record all the varieties of morbid impulse, sound, and rhythm which it may present; carefully connecting them with the other symptoms; and when opportunity may, finally offer, with the morbid anatomy. In this manner, and this only, can he hope to read the *secrets of the heart*, and become a good clinical auscultator.

On the elements of this branch of semeiology we shall again avail ourselves of the *exposé* of Collin.

Morbid Phenomena presented by the Heart.

These pathologic phenomena, like the natural ones, are referable; 1st, To the extent in which we hear the pulsations of the heart, by the aid of the cylinder; 2d, To the shock or impulse of the organ; 3d, To the nature or intensity of the noise caused by its contractions; 4th, To the rhythm, according to which its different parts contract.

1st, *Extent.* The extent of its pulsations may exceed their natural limits, or be confined to a very small surface. But before entering into any details on this subject, it is necessary to establish a distinction between the extent in which we hear the pulsations, and that in which they may be felt.

The increase of extent in which the pulsations become evident, is usually in the following order: 1st, The left side of the chest, from the axilla to the region corresponding to the stomach; 2d, The right side in the same extent; 3d, The left posterior part of the chest; 4th, Lastly, but rarely, the posterior part of the right side. The intensity of the sound is progressively less in the succession indicated.

The possibility of hearing the heart in these different regions, always indicates a state of weakness of the organ, a small degree of thickness of its walls, particularly of the ventricles; the passive dilatation of some of its parts.

It may also depend on causes not connected with the heart, the action of which may be either permanent or temporary; such are the thinness or narrowness of the chest, hepatization of the lung, its compression by effused fluid, the existence of excavations with firm walls, pneumo-thorax, nervous agitation, an intense fever, palpitation, hemoptysis, and in general all the causes which increase the frequency of the pulse.

The diminution of the extent in which the heart's pulsations can be heard, usually announces a more or less marked thickening of its walls; it is not very often observed.

It is less rare to observe, that in the same circumstances, the pulsations of the heart seem to confine themselves so as to be felt in a smaller extent than in the sound state; on the contrary, when the heart is dilated, it strikes the sternum by a large surface. The two last observations are not always correct: I have met with numerous exceptions.

2d, *Impulse.* We have said, how many varieties the intensity of the shock of the heart in the healthy state offered to the ear, so it is very difficult to pronounce decidedly upon its increase or diminution, unless they are strongly marked, or do not exist at both sides at once, which is generally the case.

The increase of impulse offers numerous degrees, from a slight excess of force, to that violent shock which communicates a disagreeable stroke to the head of the observer, and raises the walls of the thorax strongly enough to be visible at a certain distance. It is almost always in direct proportions to the thickness of the ventricular walls, and in inverse proportion to the extent of the pulsations: it is then the pathognomic sign of hypertrophy of this organ.

Quick walking, running, ascending, nervous agitation, palpitation, fever, may produce it temporarily without any alteration of the heart; so we should not proceed to an examination till after a considerable repose of body and mind. Venesection lessens this impulse; we should judge badly of its degree after this operation.

The diminution of the impulse, though rarely, is sometimes as exaggerated as its increase; it depends at one time on the weakness of the organ, the small degree of thickness of its walls, and coincides with extended pulsations; at another, on extreme obstruction of respiration, on the difficulty of pulmonary circulation, and may then coexist with a well characterized hypertrophy. This diminution is often observed in the latter stages of the complaint; certain affections of the mind, fear, depressing passions, may also produce it.

3d, *Sound.* The sound of the contractions of the heart may become dull or more clear, more sonorous than in the natural state. It may give rise to sounds wholly new, of which not even the rudiments can be perceived in the healthy state of the organ.

The diminished intensity of the sound seems to depend on the softening of the tissue of the organ, or on an increase of the thickness of its walls; it is, with feebleness of impulse, the only sign furnished by the cylinder of the first of these affections, a disease rare and most usually mistaken.

The clearness, the sonorousness of the contractions is much more frequently observed; it is always met with in a heart having thin walls, and indicates this natural or pathological condition. This clear noise may proceed from the auricles or the ventricles. The time and place at which it is heard, indicate the part which gives rise to it; it always announces a thinness of the portion of the heart of which the contraction takes place.

As to the sounds which present themselves, not having any rudiment in the healthy state, we shall refer them to three heads. 1st, The bellows blast; 2d, The rasping noise; 3d, That which has some resemblance to the creaking of new leather.

1st, *The bellows blast*, tolerably well characterized by its name, may accompany the contraction of the different parts of the heart, or that of the arteries, either all at once or partially. It may be constant, or only return from time to time without any appreciable cause, on the slightest movement, or from the slightest emotion. The nervous, the hysterical, and hypochondriacal, those subject to any hemorrhage, present this phenomenon most frequently, without any alteration of the heart's structure, or any disturbance of its functions. It may also exist during disease of this organ in persons of none of the above dispositions.

At the opening of the dead bodies of those who have presented it in the highest degree, and in the most constant manner, in the heart and arteries, we do not meet any constant lesion to which it may be reasonably attributed.

M. Lænnec regards it as indicative of a simply spasmodic state of the circulating vessels, or of some part only of the sanguineous

system. Many observations seem to prove this opinion:—1st, Its analogy to the noise produced by a forced muscular contraction, of which it is easy to assure ourselves. In fact, if we support the elbow upon a table, rest the ear forcibly upon the hand, and contract and relax the lower jaw alternately with energy, we hear a sound quite similar. 2d, The facility with which we cause it in some persons in a great number of arteries alternately, by resting lightly upon a point of the vessel, contracting its calibre, and thus offering to the course of the blood an obstacle which does not completely retard its progress. 3d, Its appearance before active hemorrhages in the vessels which carry the blood to the part through which the hemorrhage is about to take place. 4th, Its constant existence in cases of palpitation produced by anemia.

* * * * * * * * * *

2d, *The noise of the rasp or file*, of which the denomination gives an exact idea, which it is impossible to mistake when once it has been heard, may, like the bellows blast, accompany the contraction of any of the parts of the heart; but it is not intermittent like that, its strength alone varies; once developed it ceases no more. M. Lænnec regards it as a certain sign of contraction of the orifices of the heart by ossifications, vegetations, or other cause. The period of the contraction, and the place in which it takes place, indicate the orifice affected. Does not the possibility of producing a very similar noise in a person subject to the bellows blast, by pressing on an artery with a certain force, appear to announce that this is but a modification of the other, owing to a more marked state of spasm caused and maintained by an obstacle more difficult to overcome and always equally resisting?

3d, *The sound resembling the cracking of new leather* has only once presented itself to our observation; it was in a man who was carried off by a chronic pericarditis. The sound lasted during the first six days of the disease, and disappeared as soon as the local symptoms announced a considerable effusion into the pericardium.

* * * * * * * * * *

Perhaps this noise may be a constant symptom of pericarditis before the occurrence of effusion into the serous envelope of the heart, a fugaceous symptom, when the disease terminates in a few days; of longer duration, when it is chronic.

4th. *Rhythm.* The changes in the rhythm of the heart's pulses are not very rare; but for want of sufficient observations, we have not been able to convert them into diagnostic signs.

They often accompany an hypertrophy, a dilatation of the heart, or the contraction of its orifices, during the whole duration of the complaint; they often manifested themselves also only in the latter stages of these affections; at other times these lesions produce death, without the rhythm of the pulsations having been irregular.

We shall consider the alterations of the rhythm; 1st, Relative to the respective duration of the contractions of the auricles and ventricles; 2d, Relative to their succession.

1st. The alterations of the rhythm rarely depend on the duration of the auricular contractions; they are usually owing to the increased length or the shortness of the ventricular contractions, and then it is the period of repose which is increased or diminished. The first of these alterations, that which consists in the prolongation of the ventricular contraction, is observed in hypertrophy, and is the more evident as the disease is more marked. The second, that in which there is greater rapidity of contraction, coincides with different states of the pulse, swiftness, rarity, and furnishes no data upon which we can found our diagnostic of diseases of the heart and lungs.

2d. These alterations, considered as they relate to the succession of the pulsations, have been sufficiently often observed; they are usually transitory, and rarely attend more than two or three complete contractions of the heart.

Thus sometimes the contraction of the auricle anticipates that of the ventricle; at others, that of the ventricle anticipates the auricular contraction; or again, a contraction of the ventricle is followed by many successive, rapid, as it were, convulsive contractions of the auricle, which, taken together, do not exceed the duration of an ordinary contraction.

The greater part of these anomalies do not produce any sensible change in the state of the pulse, and are not constantly met in any of the diseases of the heart.

In the midst of a series of contractions equal to each other, we often observe many shorter, more lively beats, after which the heart returns to its natural rhythm.

At other times, after a series of regular pulsations, the heart seems to stop, and remain for a very long time in a state of repose. These kinds of intermissions, observed in an adult, are always the sign of an affection of this organ.

In fine, in some more rare cases the swiftness and irregularity of the contractions are such, that it is impossible to analyze them. In this case we may pronounce with certainty that there exists a disease of the organ.

We see from this explanation of the pathologic phenomena furnished by the heart, that there are only two, impulse and sound, which become certain signs of lesion of different parts of this organ; that all the others drawn from the rhythm, bellows blast, and rasping sounds, &c. have not been sufficiently often observed to enable us to say what alterations they indicate. But I doubt not that attentive observation of those diseases, and their daily observation with the cylinder, may one day furnish the information now wanting, and very soon render the diagnosis of these affections as precise and easy as most of the other diseases of the thorax.—pp. 64–77.

General Semeiology.

Before proceeding to inquire into the symptoms and auscultic phenomena which distinguish particular læsions of the heart, it may be well to recollect those which are in some degree common to this family of maladies. The most important are:—

1. Alterations in the force, fullness, frequency and rhythm of the contractions of the organ; increased by certain postures and especially by exercise—attended of course with a variable pulse.

2. Embarrassed respiration, without well developed cough, greatly increased by exercise.

3. An anxious and laborious expression of countenance, especially under great exertion.

4. Variations in the complexion, particularly of the face:

a. An unnatural paleness.

b. A purple or violet hue, sometimes only perceptible in the epithelia of the lips; or

c. A scarlet flush, which may appear under exercise, or arise and spread, rapidly and irregularly, over the visage of the patient, and disappear while you are yet conversing with him.

5. Headache, especially in the forepart, with great depression of spirits.

6. Wandering muscular pains about the chest.

7. Chylopoietic disorders, such as constipation, flatulence and biliary derangements.

8. In advanced stages, serous effusions into the cavities of the pericardium, pleura, peritoneum, and the cellular tissue of the extremities.

Classification of Cardiac Maladies.

It would be absurd to suppose, that the Stethoscope is equally adapted to the diagnosis of every malady of the heart; but when about to indicate those concerning which it can be made to afford important information, it may be

well, to place before us a systematic catalogue of the principal unnatural and morbid states of that organ. These may be grouped under the following heads:—

1. Malformations.
2. Muscular Læsions.
3. Degeneracies.

I.—*Malformations.*

1. The foramen ovale continuing open after birth.

2. The foramen ovale shut in the fœtus, driving all the blood into the pulmonary artery and changing the character of the pulmonary organ and circulation.—*Corvisart.*

3. The ductus arteriosus, continuing open.

4. The pulmonary artery preternaturally contracted or quite impervious, at the time of birth. A partial circulation through the lungs from the blood returning out of the aorta along the ductus arteriosus into the pulmonary artery.—*Dr. Hunter.*

5. Transposition of the aorta and pulmonary artery.

6. The aorta placed over the septum, and receiving blood at the same time from both ventricles.

7. A third ventricle placed between the others and receiving blood from both, while the two great arteries arise not from the right and left, but the middle cavity.—*Bell.*

8. Some of the valves wanting.

9. The whole heart preternaturally large or preternaturally small.

II.—*Muscular Læsions.*

1. Hypertrophy or unnatural growth:
   a. Of the left ventricle.
   b. Of the right.
2. Dilatation of the ventricles:
   a. Of the left.
   b. Of the right.
3. Hypertrophy with dilation:
   a. Of the left.
   b. Of the right.

4. Dilatation of the auricles with hypertrophy.
5. Aneurism.

III.—*Degeneracies.*

1. Fatty or adipose changes:
   a. Deposits of fat around the heart.
   b. Transformation of the muscular fibres into a fatty or adipocirous matter.
2. Bony or cartilaginous changes:
   a. Of the valves,
   b. Of the substance of the heart,
   c. Of the coronary arteries.
   d. Of the great vessels.
3. Ramollisement or softening of the heart.

To which may be added carditis, pericarditis, hydropericardium and spasmodic palpitations.

We shall now proceed to consider the diagnosis of particular maladies of the heart, passing by the congenital, and selecting from the remainder, such as are of most frequent occurrence, or best display the powers of the Stethoscope.

Muscular Læsions.

I.—*Simple Hypertrophy.*

Diagnosis. An excellent description of this disease was given by Allen Burns, of Glasgow, in 1809, in his work entitled "*Observation on some of the most frequent and important diseases of the Heart,*" but it remained for Lænnec, ten years afterwards, to give it the learned name of Hypertrophy, and to be regarded as the first who recognized its existence.

Mr. Burns observes, that in this disease "The balance between the heart and arteries is lost. By the great addition of muscular substance, the whole sanguiferous system is thrown into a deranged state of action." "There is confusion and struggling in the chest, inexpressible anxiety and inquietude in the action of the heart, with a weak, irregular, intermitting, fluttering, rapid, or corded pulse." The incessant and irregular action of the heart "Exhausts the bodily

strength and overpowers the faculties of the mind, ruining every source of enjoyment and distressing the patient with never ceasing feelings of instantaneous dissolution."

To these diagnostics, Lænnec has added, that the patient seems to be constantly sensible of the action of the heart, but is not, as in some other cardiac læsions liable to spontaneous attacks of more violent palpitation.

The most accurate diagnosis is furnished, however, by auscultation. When we resort to the Stethoscope, we find great increase of impulse, with diminution of, or natural sound, and this impulse not extended over the chest, but limited, to the spots where the pulsations are usually felt. If it be equally strong, we may conclude that both ventricles are affected. As it may preponderate at the cartilages of the 5th and 6th ribs, or at the ensiforme cartilage, we decide that the left or right side is hypertrophied.

Sometimes the pulsations are irregular, intermittent; most commonly their rhythm experiences no other alteration than an increased duration of the ventricular contraction. Then that of the auricles takes place before that of the ventricles is finished; it is short, attended with little noise, and for that reason scarcely sensible.—Collin, p. 125.

The symptoms enumerated by Mr. Burns are those attendant on advanced stages of the malady. In its early period we can only rely on Auscultation.

Percussion rarely furnishes any results; however, in some cases of very severe hypertrophy, the sound has been observed to be obscure or flat in the præcordial region.—Collin, p.-124.

Morbid Anatomy.—Hypertrophia may exist in one or both ventricles, with or without a similar affection of the auricles. Most commonly the auricles are not affected, but occasionally they are so, while the ventricles are sound.

When affecting the left ventricle, I have seen its parietes more than an inch thick at the base, that is, double that of its sound state. Commonly, this morbid thickening diminishes insensibly from the base to the apex of the ventricle, where it is scarcely perceptible; sometimes, however, the apex partakes in the enlargement; as I have seen it from two to four lines thick, which is double or quadruple the natural size. The columnæ carneæ of the ventricle and of the

valves acquire a proportionate enlargement. The septum between the two ventricles becomes also notably thickened in the disease of the left ventricle, (which fact seems to mark it as belonging to this rather than the other ventricle,) but never so much so as the other parts.

The muscular substance in these cases is of a degree of consistence sometimes double the natural, and is of a redder colour.—The cavity of the ventricle appears to have lost in capacity what its parietes have gained to thickness. Sometimes I have found this so small, in hearts twice the size of the first of the individual, as scarcely to be capable of containing an almond in its shell. The right ventricle, in such cases, is flattened along the septum, and does not extend to the apex of the heart. In extreme cases, it seems as if it were merely included within the parietes of the left ventricle.

In hypertrophia of the right ventricle the appearances are somewhat different. The thickening is here more uniform, and never so great as in the other: I have never found it greater than four or five lines. It is always a little greater in the vicinity of the tricuspid valves, and at the origin of the pulmonary artery. The columnæ carneæ are much enlarged, considerably more so, in proportion than those in the left, in disease of that side. Simple enlargement of the right ventricle, without dilatation, is much rarer than that of the left. When this disease affects both ventricles at the same time, the only difference from the description just given is, that each side assists to form the apex of the heart.—Lænnec, p. 166.

II.—*Simple or Passive Dilatation of the Ventricles. Passive Aneurism* of Corvisart.

Diagnosis. As in the preceding species, the *general* signs of organic læsion will be present.

Mr. Burns observes, "in the cases of simple unmixed dilatation of the ventricles, which I have seen, the patients have complained of oppression in the chest, with a sense of occasional suffocation; the pulse has uniformly been full, soft and slow." "The heart beat sluggishly." He then cites a case in illustration, the principal symptoms of which were the following:—anxiety and oppression in the chest, accompanied with a constant disposition to syncope, upon making even trivial exertion. The paroxysms of breathlessness, continues he, were frequent, and the pulse fell from its usual standard, (70 to 80) at first to 18, then to 12, and, in the end, it was as low as 11 and 10 beats in a minute." It was full and soft. In this case, *all* the cavities were equally dilated; and the

great arteries also, which undoubtedly contributed to the equanimity of the circulation.

Corvisart enumerates the following signs:

Lymphatic temperament; bland or timid disposition; antecedent and protracted grief, or debilitating disease of a chronic character. Visage rather pale and wan, or bloated and violet. The palpitations generally weak and dull. The sensation imparted to the hand of the observer when applied to the region of the heart, that of a large soft body, rising slowly against the ribs; and the slight impulse which it gives, apparently rendered weaker by the pressure of the hand. Pulse variable in frequency—generally weak and compressible.

To these signs it may be added from Lænnec, (p. 268) that in using the Cylinder, the impulse of the heart is found less than natural, but the sound emitted by the contraction of the ventricles is clear and loud; and not confined to a small space, but diffused in proportion to the extent of the dilatation.

When the left ventricle only is affected, the excessive sound is chiefly at the 5th cartilage, and the jugular veins are less distended. When the right ventricle alone is dilated, the greatest sound is at the lower end of the sternum; the jugulars are plethoric, but without pulsation; and the complexion is more violet.

The sound over the heart on Percussion is sometimes a little obscure.

Morbid Anatomy. Dilatation of the cavities of the heart is attended with diminished thickness of their parieties.

With these conditions, says Lænnec, there are commonly conjoined a notable degree of softening of the muscular substance, and a colour, either more violet, or paler, than natural. Sometimes the softness is so considerable, especially in the left ventricle, that the muscular substance can be destroyed by mere pressure between the fingers; and the parietes of the same ventricle may be so much diminished in thickness, as to be only two lines in the thickest point, and scarcely half a line at the apex, while the right ventricle is sometimes so completely extenuated, as to appear merely composed of a little fat and its investing membrane. The columnæ carneæ, particularly of the left ventricle, are more remote than in the natural con-

dition of the part. The septum between the ventricles loses less of its thickness and of its consistence than the rest of the parietes.—

Dilatation may be confined to one ventricle, (the other natural or hypertrophied) although it more commonly affects both at the same time. When one only is affected, the apex of it extends below the other, but not in so remarkable a degree as in the case of hypertrophia. The augmentation of the cavity seems to be more in its breadth than length. This is particularly observable when both the ventricles are dilated at the same time; as, at this time, the heart assumes a rounded shape, being nearly as wide at the apex as at the base.—Lænnec, p. 167.

III.—*Hypertrophy with Dilatation. Active Aneurism* of Corvisart.

1. *Of the left Ventricle. Diagnosis.* Sanguine temperament; robust constitution; the previous action of acute and violent causes.

Pulse variable, but generally hard and frequent.

Violent and struggling impulse of the heart, seeming to become greater from increased pressure of the hand.

The countenance injected, bloated and red.—*Corvisart.*

The Stethoscope reveals great sound and great impulse; more perceptible at the 5th, than the ensiform cartilage, but extending generally over the left side and even further.

The auricle is sonorous. The contractions of the ventricle are easily felt by the hand, even at a distance from the heart. The rhythm of the pulsations is rarely altered. Percussion causes an almost perfectly flat sound.—*Collin.*

The carotid, radial and other arteries are manifestly augmented in the force and volume of their pulsations.

2. *Of the right Ventricle. Diagnosis.* When this ventricle is affected with active aneurism, the pulse is less disturbed, but the face is more bloated and of a violet hue.—*Corvisart.*

The jugulars are distended and *pulsate.—Lancisi.*

The respiration is more embarrassed, and by exercise or internal stimulation, the dyspnœa is remarkably increased. Hæmoptysis, in various degrees, is a consequence that frequently recurs, especially under excitation of the heart.—*Burns.*

By auscultation, the great sound and impulse are found to be at the lower end of the sternum; but may be discovered in other parts according to the degree of dilatation.—*Lænnec.*

Morbid Anatomy of the two Varieties.—Dilatation of one ventricle is sometimes conjoined with hypertrophia of the other, but this is not so common as the complication in individual ventricles. I have met with the following varieties of this complication: 1st, Hypertrophia with dilatation of the left ventricle, and simple dilatation of the right; 2nd, Hypertrophia with dilatation of the left ventricle, and simple hypertrophia of the right; 3rd, Hypertrophia with dilatation of the right, and simple dilatation of the left; 4th, Hypertrophia of the right, with dilatation of the left: this last is the rarest. I do not remember to have met with hypertrophia of the left ventricle (with or without dilatation) complicated with dilatation of the right. I would even be disposed to consider such an union as impossible. Lænnec, p. 168.

IV.—*Dilatation of the Auricles, with Hypertrophy.*

Diagnosis. We know of no signs by which this rare læsion can be detected, except the absence of the symptoms of disease in the ventricles, and an increase of sound in the auricular contractions, may indicate it.

Morbid Anatomy.—I have never met with decided dilatation of the auricles without some thickening of their walls; and, on the other hand, I have never seen thickening of their walls without an augmentation of their capacity. I may here remark that it requires much experience to judge correctly of hypertrophia of the auricles, as, owing to their great natural thinness, a considerable increase (say double the natural thickness, and the increase is rarely so much) is not obvious to a person little accustomed to such examinations.

Dilatation of the auricles is an extremely rare disease, and it appears still more so compared with the frequency of the same affection of the ventricles. Sometimes we find in subjects affected with hypertrophia or dilatation of the ventricles, the auricles, also proportionably enlarged; it is, however, much more common to find these retaining their natural size even in cases where the ventricles are enormously enlarged. Sometimes also, but more rarely still, the auricles are dilated when the ventricles are of the natural size.—Lænnec, pp. 168–169.

V.—*Aneurisms.*

Time was, when all dilatations of the heart were grouped under the comprehensive term *Aneurism*. At present this

designation is properly restricted, to such as bear the same anatomical relations to the parieties of the heart, as arterial aneurisms bear to the tunics of the vessels. Thus limited, the term embraces but a small number of cases, for true cardiac aneurisms, appear to be much rarer than simple dilatations and hypertrophies. Several well marked cases have, however, been recorded; and we are at liberty to suppose, that a still greater number have escaped observation, both before and after death. Of the recorded cases, the majority, if not the whole, have belonged to the left ventricle. When small, they seem to give rise to few symptoms, and none by which their existence can be established; and when large, their diagnosis is little less obscure. In a case reported by Cruveilheir, the predominant symptoms were those of a severe asthma, and nothing is more probable, than that many cases of that malady have depended on aneurisms or some other organic affection of the heart. When the aeurismal parieties give way, sudden death must of course be the consequence.

Aneurisms of the great arteries within the chest are of deep interest. In their symptoms and tendency, they may be compared with the most formidable of the læsions of the heart, which, however, they generally outstrip in their mortal career. They are apt to occasion instant and unexpected death, and have often not been supposed to exist, until detected in *post mortem* examinations.

Diagnosis. When the dilatation is not yet so great as to form an external tumour, the signs of this disease are liable to be confounded with those which in general terms indicate affections of the heart. In this stage of the disease, Corvisart relies chiefly on a hissing sound, which, however, manifests itself only when the tumour occupies the arch of the aorta and acts upon the trachea. A peculiar rushing, above the region of the heart, that organ being found in its usual place. A dull sound under percussion, of the upper and middle part of the thorax. Finally, the smallness and irregularity, of the pulse.

Lænnec regards these symptoms as equivocal, and expresses the opinion, that "in the present state of our knowledge there certainly exists no certain means of ascertaining the existence of this disease until it shows itself externally." His experience with the Stethoscope has not been sufficiently diversified, to afford any satisfactory results. In one case where the tumour had appeared externally, in which he was enabled to verify the diagnostic indications afforded by the cylinder, by dissection, "the pulsations of the tumour were perfectly isochronous with the pulse at the wrist; they gave at the same time a greater impulse and louder sound than the mere contraction of the ventricles; and the contraction of the auricles was not at all perceptible."

The intelligent Editor of the American edition of Collin observes, that—

In aneurism examined by the stethoscope, there is a peculiar sound, different from that of the heart, and different also from that of the great arteries in their natural condition (which it may be difficult if not impracticable to describe so as perfectly to convey the idea in words to one who has never observed the peculiarity upon the living body,) which is nevertheless characteristic of aneurismal dilatation. A person who has, in a single instance of well marked aneurism, carefully investigated and observed the phenomena perceptible to the sense of hearing by means of the stethoscope, will readily recognize this peculiarity of the sound. This is not confined to aneurism of the large internal arteries,—the Editor of the present edition having observed it in inguinal, femoral, popliteal, brachial aneurisms, as well as in those of the larger arteries within the chest and abdomen. In a case of varicose aneurism of the arm, produced by transfixing the vein and wounding the artery in bleeding, the sound produced, when examined by the stethoscope, might be compared to that of a circular saw acting upon wood, one small portion of the circle bearing in a less degree upon the wood than the remainder of the circle; but the diminution of the sound scarcely amounting to a perfect intermission.

In thoracic aneurisms of the great branches of the aorta, a comparison of the pulsations of the carotid and subclavian arteries among themselves, might, in connexion with the signs already enumerated, enable us to decide on the spot affected.

Degeneracies.

I.—*Adipose.*

Diagnosis. We know of no signs by which adipose degeneracies or envelopements of the heart can be identified. Depositions of fat might perhaps be inferred, from prevailing obesity, connected with disturbances of the circulation and the signs of softening of the heart.

Transformation of the muscular substance of the heart into fatty matter might be expected to be attended with the same signs as softening of the heart.

II.—*Bony or Cartilaginous.*

1. *The Substance* of the heart is sometimes indurated to a cartilaginous state. Lænnec supposes this to be the effect of Hypertrophy. Sometimes it becomes partially osseous. Mr. Burns informs us, that Bordenave met with a case in which the whole heart was ossified. Mr. B. has described a case, (Margaret Henderson's,) in which both the ventricles, except about a cubic inch at the apex of the heart, were ossified, and as firm as the skull. Both auricles were thicker than usual, but healthy. Many cases of partial ossification are mentioned by authors.

The diagnostic symptoms have not yet been made out.

2. *Of the Valves.* Induration, ossification and excrescences of the valves of the left side, are much more common than of the right. These affections may bring on hypertrophy, or dilatation, and are often complicated with them.

Diagnosis.—Ossification of the mitral and sigmoid valves does not produce irregularity of the circulation, and cannot therefore be suspected from the state of the pulse, or by the application of the hand to the region of the heart, unless it is so considerable as materially to lessen the orifices of the left ventricle. In ossification of the mitral valve, in a middling degree, the sound which attends the contraction of the auricle becomes much more prolonged, more dull, and with something in its tone which reminds one of the rasping of a file on wood, and sometimes of a bellows smartly compressed.—This sound is well-marked when the *purring* is not perceptible to the hand, but it is much more distinct when this is perceptible, and is, indeed, proportional to its intensity.

The ossification of the sigmoid valves of the aorta is shewn by the existence of this sound during the contraction of the ventricle; but this does not exist in slight degrees of the affection, nor in a similar condition of the mitral.

In these cases, as in dilatation and hypertrophia, the alternate examination of the heart under the sternum and between the cartilages of the fifth and seventh ribs, as well as the state of the external jugulars, will always enable us to decide in which side of the heart the disease exists.—Lænnec, p. 272.

3. *Ossification of the Coronary Arteries;* attended with the symptoms which characterize and sometimes, constitute Angina pectoris, or Syncope anginosa.

Diagnosis. Sudden paroxysm of pectoral anxiety, with painful sense of suffocation, induced by exercise, going off after a total cessation of muscular effort. Pulse, in the attack, reduced in strength, irregular, and sometimes with the contractions of the heart entirely suspended, so as to produce or constitute syncope. Lancinating pains through the chest, from before backwards, in the pectoral and subscapulary muscles, and, often in the arms, especially, the left. Face bloodless and sweaty. Stomach oppressed with flatulence. After a time, the paroxysms returning when the patient is quiet or asleep. In the early stages the pulse, between the paroxysms, not particularly abnormal, but at last becoming habitually weak. Ultimately dropsical effusions, as in other cardiac læsions.

Morbid Anatomy. The coronary arteries generally ossified, and portions of ossification in other parts of the vascular system and the heart itself. That organ often loaded with fat, and sometimes partially transformed into adipose matter. The muscular fibres often relaxed and flabby. Sometimes softened.

III.—*Ramollisement or softening of the Heart.*

Diagnosis.—We may consider this to exist when the heart returns a sound equally moderate, dull, and obtuse in its two contractions, and communicates little or no impulse. If the noise caused by the heart's contractions, although loud, is rather flat, and loses the clapping character usually attending dilatation, the softening is attended with that state; but if the sound of the contraction is so indistinct as to be almost no longer heard, it will be accompanied by hypertrophy.

Sometimes, however, in attacks of palpitation, a softened hypertrophied heart may produce brisk contractions, short, and like the blow of a hammer, but this effort is of short duration, and the organ very soon falls back into its habitual state.—Collin, p. 128.

Having in this Journal for October, 1828, reported a case of this disease, and given copious extracts from Lænnec on its diagnosis and morbid anatomy, we shall refer the reader to that number.

Carditis and Pericarditis.

Diagnosis. In our October number for last year, we gave copious excerpts from Lænnec on these affections, which we shall not repeat.

As yet the value of the Stethoscope in the diagnosis of these inflammations, has been found very small. The manual of Collin may be regarded as presenting all that is known on this subject. The following are his principal remarks, which apply to inflammations of the pericardium, rather than the heart itself:—

M. Lænnec mentions the increased impulse and sound of the ventricular contractions, with their inequality and disproportion to the feebleness and smallness of the pulse, as signs of pericarditis. Perhaps the noise which I have compared to the creaking of leather, is a symptom of this affection; it is one of short duration, limited to a few hours, if the disease is acute, and quickly producing effusion, more durable when the progress is slower. The friction of the two lamina of the pericardium, deprived of the serous exhalation, by the inflammation, may explain the sound.

In the diagnosis of pericarditis the symptoms upon which we may, perhaps, place the greatest reliance, are a feeling of anguish in the region of the heart; disturbance and depression of the feelings and faculties of the mind; an irregular, small, intermitting and wiry pulse; occasional vomiting and sympathetic abdominal pain; a strong tendency to syncope on taking exercise; and the absence, under the use of the Stethoscope, of the signs of those cardiac læsions which have been described.

Both carditis and pericarditis are frequently metastatic diseases, and depend on a rheumatic or athritic condition of the

system. Hence we may often derive aid in our diagnostic researches, by inquiring into the previous or most habitual maladies of the patient.

For the diagnosis and treatment of rheumatic affections of the heart and pericardium, the reader may consult Johnson on the Liver, which presents an interesting collection of cases, with many sound practical reflections.

When extensive adhesions of the pericardium to the diaphragm have taken place, a strong pulsation may become perceptible in the epigastrium.—*Burns.*

Morbid Anatomy.—Adhesions more or less general of the pericardium to the heart, the diaphragm, and the pleura pulmonum. Tubercular depositions of lymph. Thickening of the membrane. Serous and purulent effusions. Softening of the heart.

Hydropericardium.

Diagnosis.—In genuine dropsy of the pericardium the breathing is generally less affected in all positions and circumstances of the body; and it is more of the quick, hurried, anxious, than of the slow laborious kind: in other respects there are some peculiarities. Though the recumbent posture be borne with less inconvenience, yet if the pericardium be much distended, and if the other cavities contain but little, or be entirely free from water, a sensation as if something were rolling in the breast, in the region of the heart, is perceived on turning from one side to the other, together with an increased difficulty of breathing, and a sense of weight, on attempting to lie on either, especially the right.

The erect position too is no less irksome, owing to the pressure and *bearing down pain* of the distended pericardium on the diaphragm, to relieve which the patient is obliged to sit up, or walk, with his body bent forward, or stooping. The greatest ease is in such cases experienced lying on the back with the shoulders elevated and the body inclined to the left side; this indeed will be found the easiest position in every stage of the disease.

The palpitation of the heart, though probably more constant, is less violent, and less distinctly felt, being of the weak fluttering kind; and this circumstance, added to the more remarkable variations observed in this respect on change of position, may serve to account in some degree for the great difference of opinion in medical writings in regard to its presence or absence.

The peculiarities of the pulse are still more striking; it is softer, more feeble, frequent, irregular and tremulous, without those occasional intermissions, now and then succeeded by a few regular and

full strokes of the artery, mentioned as occurring in hydrothorax.—It will be obvious, however, that the palpitation and pulse will vary according to the stage of the disease or the quantity of water contained in the pericardium.

The peculiar sense of sinking, fainting, anxiety, or constriction, will be more constant, and referred more immediately to the seat of the heart.

With respect to the swelling of the ankles, defective secretion of urine, coldness of the extremities, and other deviations from the healthy state, mentioned as common to hydrothorax, experience does not warrant our reliance on any symptom which does not occur in the one as well as in the other.

A learned and ingenious medical friend, of whose judgment I entertain the highest opinion, has favored me with the following remarks and interesing case: "So far," he observes, "as my experience enables me to judge, under the guidance of my memory and written notes, I refer the diagnostic symptoms of the dropsy of the pericardium to *two* only, all besides being extremely uncertain, I mean *the feebleness and fluttering of the pulse*; and the ability of the patient to bear *the recumbent posture*.—McClean, p. 39.

Authors vary respecting the symptoms of this affection. Lancisi states the principal to be a sensation of an enormous weight in the region of the heart. Reimann and Saxonia assures us that the patient feels his heart swimming in water. Senac says he has seen the fluctuation of the fluid between the third, fourth and fifth ribs. M. Corvisart says he has perceived this fluctuation by the touch, and adds the following as marks of the affection:—sense of weight in the region of the heart; inferior resonance on percussion; pulsation of the heart irregular and obscure, and felt over a large space and with variable intensity in the same and different points of this space; pulse small, frequent and irregular; threatened suffocation on lying in the horizontal posture; frequent syncope, but rarely palpitation; œdema. To these symptoms I may apply the same remarks as to those of pericarditis: they may exist, in greater or less number, with or without hydro-pericardium. I am unable to say, from experience, how far, and in what respect, the cylinder will assist the diagnosis of this disease.—Lænnec, p. 275.

As to dropsy of the pericardium, the only symptoms which can lead us to suspect it, are a completely flat or fleshy sound in the precordial region, and tumultuous and obscure pulsations of the heart, sensible in a great extent, and for some moments more at one point than at others, and reaching the hand, as if a soft body were interposed.—Collin, p. 133.

Palpitations and spasmodic irregularities of the Heart.

All the *organic* diseases of the heart which have been enumerated, are attended with habitual or occasional palpitations, intermissions, or other disturbances of its rhythm. They depend, first, on the embarrassment which a læsion of anatomical structure necessarily imposes on the heart; and secondly, on the morbid sensibility (contractility) to which those derangements give birth, or, at least, with which they are associated. But there are palpitations and other abnormal contractions of the organ, which arise exclusively from the latter of these two proximate causes, and in which the prognosis is very different from that which belongs to every case involving an organic affection, which is, in general, incurable.

Diagnosis. Now the problem is, to determine, in a case of palpitation or irregularity of action, whether it is caused by an organic læsion. In many cases this is a question of difficulty, and in all of deep interest to those afflicted.

When the enumerated signs of the different structural derangements, or, a majority of them, are manifest, we are not at liberty to indulge a doubt whether the palpitations or irregularities are the consequence of such derangement; but if those signs are uncertain, there is ground for hope that the palpitations are purely spasmodic; and when they are altogether absent, we may without much hesitation, assure the patient that his case is not dangerous. Prudence, however, dictates that we should form and express our opinions cautiously, as the most sagacious and experienced are liable to commit error in the diagnosis of these maladies.

Something may be inferred from the temperament of the patient. According to our own observations, those of the bilious and lymphatic and nervous temperament, are most liable to palpitation. A reference to age will likewise aid us. In males, palpitations are most common from 18 or 20 to 30 or 34—in females, about the periods of the establishment, and final cessation of the catamenial function. The sex should also be taken in account; as palpitations unconnected with organic læsion are more common in women than men.

A still greater reliance may be placed on the previous maladies of the patient or the isochronous disturbance in other organs. For the benefit of our junior readers, we shall enumerate the principal disordered states of the body in which we have met with those irregularities of the heart's action that are purely functional, that is, unaccompanied by inflammation or structural læsion.

1. *Irritation from Venesection.* Every observing practitioner must have witnessed the powerful influence of bloodletting, in the production of a state of morbid irritability of the heart and arteries. Hence, in the treatment of acute diseases, where something more than leeches, and the *medicine expectante*, compose the whole treatment, it is not uncommon to find our patients, in the decline, affected with palpitations and other 'nervous' disorders. The circumstances under which they occur will in general enable us to distinguish them from such as depend upon injuries of structure.

2. *Dyspepsia.* In this malady, the ordinary duration of which is twelve or fourteen years, or through the 4th and 5th climactericks, palpitations, intermissions, and irregularities of the movements of the heart are exceedingly common; and often occasion great alarm to the patient. The most common form is palpitation, which occurs oftener at night, in bed; than in the day, when the individual is occupied and the ordinary causes of mental excitement are acting upon him. But disturbances of the rhythm, of a graver and more suspicious character sometimes present themselves. Thus, we recollect a case in which the heart was affected with a strong, convulsive and tumultuary heaving, without any particular increase in the number of its pulsations. The patient was a physician between 30 and 40, who in the midst of dyspepsia had prosecuted his studies and practice until he was reduced to a skeleton, without having at any time had palpitations. In this condition he passed suddenly to a life of physical repose, and indulged himself in a full diet with moderate alcoholic stimulation. All his dyspeptic symptoms were forthwith signally mitigated; but in 10 or 12 weeks, he was awakened at midnight, by a violent, struggling and intermittent action

of the heart, which continued for some hours. He lost blood and took cathartics, but they afforded little or no relief, and sometimes even seemed to augment the spasmodic action. It returned upon him at various times, especially at night, for 12 or 15 months, when it gradually abated, and at length ceased altogether. More than eight years have since elapsed without his having experienced an attack.

Purely spasmodic palpitation of the heart is pre-eminently a disease of students of medicine, most of whom in this country, are dyspeptic, at least during their attendance on medical lectures. Their habits are then more sedentary than before, they eat heartily, evacuate sparingly, abridge their hours of sleep, and study more diligently than usual. Thus they are in a course of physical and intellectual imbibition, and a state plethora, with morbid sensibility of the whole system is the consequence. In this condition, palpitations are exceedingly apt to supervene; and as most of this class of patients, have read of organic diseases of the heart, the apprehension that such may be their case, never fails to arise; and quite as certainly contributes to increase the spasms of the organ. When attached to the medical department of Transylvania University, we had numerous opportunities of witnessing all that is here described.

3. *Hypochondraism.* The state of the nervous system in this malady, at whatever period of life it may occur, is peculiarly favourable to the production of palpitations; while the morbid condition of the patient's feelings and faculties, never fail to convince him that his heart is incurably diseased.

4. *Chronic Hepatitis.* The morbid sensibility of the whole system, in this complaint is, in fact, one of its most striking pathological characters; especially after the depletion which is employed in the treatment of the preceding stage. The causes of this, are sufficiently obvious. In addition to the sympathies of the other organs with the liver, and the influence of depletion, which always heightens the susceptibility of the system, the elements of the bile are not sufficiently eliminated from the blood, nor the bowels adequately excited by their natural stimulus; and hence arises a state of perverted sensibility, not less complicated in its proximate

ætiology, than annoying in its effects. Among these, an enfeebled and palpitating condition of the central organ of the circulation, is one of the most constant, contributing greatly to the despondency of the unhappy, and too often unpitied, sufferer.

5. *Chlorosis.* In this disease, related in several pathologic traits to the last, disturbances of the functions of the chest, are extremely common. They present us, indeed, in different cases, with many well simulated cardiac and pulmonary diseases, all of which evanish under a method of treatment that would fail, entirely, to cure an organic, or any *original* affection, either of the heart or lungs.

6. *Menorrhagia.* Copious uterine hæmorrhages from whatever cause and whenever occurring, are peculiarly apt to be followed by palpitations, which from their very obvious origin, need never be confounded with those which depend on original diseases of the heart.

7. *Hysteria.* Of all the morbid states, which generate functional derangement of the heart, this is one of the most common. Let us hear Sydenham on this subject:—

"Sometimes it (*the hysteric passion*) seizes the vital parts, and causes so violent *a palpitation of the heart*, that the patient is persuaded, those about her must needs hear the heart strike against the ribs.—Slender and weakly women that seem consumptive, and girls that have the *green sickness*, are chiefly subject to this species."—Wallis' Ed. vol. II. p. 108.

By the way, Sydenham, whose work is an enduring evidence, that a man—*such a man as himself*—may be a skilful physician, without the modern aids of *physiology*, *morbid anatomy*, or *pharmaceutic chemistry*, this same Sydenham, now only read by the bibliothæcasts, has left us the best treatise (absurdly associated with another on the small pox) that is now extant, on the semeiology and therapeutics of hysteric diseases;—a treatise which we have re-perused with equal pleasure and profit, and which we would recommend to the study of all who have taste or ambition to look beyond the last number of the nearest medical journal. But to return to our proper object.

When the 'hysteric passion,' (we do not know a better phrase,) is fairly excited in the system, we need never expect the heart to escape; but we cannot often confound these palpitations with those originating in a læsion of its structure. The temperament, chilliness, previous attacks, transient diabetes, and fear of death, should the globus hystericus, even be absent, will sufficiently indicate to us, the situation of the patient; and, in general, justify that diagnosis which is most desirable. We have, however, more than once met with paroxysms of palpitation exhibiting various characteristics of hysteria, in females labouring under organic diseases of the heart; so that because hysterical symptoms happen to be present, we are by no means to decide positively that there is no original cardiac disease.

8. *Grief and Apprehension.* The influence of these and other depressing emotions, on the central organ of the circulation, is universally felt and acknowledged. There are temperaments and idiosyncracies, which resist their influence more than others, but on the whole it may be said, that the passions are among the most powerful of all the causes which disturb the equanimity of the heart, not only disordering its functions by the production of various spasmodic actions, but generating in it a number of serious organic læsions. Although, we may, therefore, clearly perceive that the palpitations of our patient originated in a previous affection of the sensorial functions, we should be aware, that after they have continued for a time, a structural derangement may have supervened.

Such are some of the disordered states of the nervous system which may carry disturbance in the movements of the heart, and excite the apprehension of organic disease. We might easily extend the catalogue, but shall leave the rest with our readers.

In relation to palpitations and irregularities from these different pathological states, we may remark, as serving still further to distinguish them from the abnormal movements in organic disease, that, 1. They are generally worse when the patient is warm and quiet in bed. 2. In the day, they rage

more violently, when he is at rest than when in motion; but to this as to the preceding remark, there are exceptions; as we have seen palpitations, which, from the circumstances under which they occurred, seemed to be purely functional, that were, like those from organic disease, increased by exercise. 3. They are never habitual, while those from structural derangement in *most cases* are. 4. They are greater when the patient is idle or alone, and left to contemplate them, than when he is occupied or in company. 5. They are generally aggravated by venesection, which mitigates most of those from organic disease; but are signally relieved, and often, for the time being at least, entirely removed, by emetics and cathartics, or diffusible stimulants, narcotics and tonics, agents which afford but little relief when the structure is deranged.

The patient is more sensible of the palpitations and irregularities which arise from a spasmodic diathesis merely, than of those occasioned by organic disease, the reason of which, is to be found in the acute and unnatural sensibility attendant on the former condition.

Of what value is auscultion in the comparative diagnosis of organic and functional palpitations? This question has attracted the attention of Lænnec, and the results of his observations are set forth in one of the following paragraphs, which we extract from the Medico-Chirurgical Review, not having yet been able, to obtain the last writings of the French pathologist, from which they were taken:

"The purely nervous palpitations consist in an increase of the impulse, sound, and particularly of the frequency of the heart's pulsations. A feeling of internal agitation, particularly in the head and abdomen, always accompanies them; also a limpid watery condition of the urine. The duration of palpitations of this kind is very variable: they may be momentarily excited by mental emotion; while, at other times, they seem to originate without any obvious cause, and continue for several years, especially in young persons who are at the same time both nervous and plethoric. It is commonly imagined that such an habitual over-action of the heart as such palpitations imply, must at length give rise to hypertrophy of this organ. This is possible; but I must say that I have never seen any proof of the accuracy of this opinion. On the other hand, I am acquaited with individuals who have been habitually subject to affections of this

kind, and who nevertheless exhibit no positive sign either of hypertrophy or dilatation."

"In nervous palpitation, the first impression conveyed by the stethoscope is that the heart is not enlarged. The sound, though clear, is not heard loudly over a great extent of chest, and the impulse, although appearing considerable at first, is really not great, as it never sensibly elevates the head of the observer. This last sign seems to me the most important and certain of any, when taken in conjunction with the frequency of the pulsations. These are always quicker than natural,—being, most frequently, from eighty-four to ninety-six in the minute. Nervous palpitations are rarely accompanied by any sign of determination of blood to the head or chest, except in old persons."

With these quotations we close our remarks on the signs by which we may know mere palpitations; and shall conclude our diagnostic inquiries, by a reference to the symptoms which characterize

Rheumatism of the Heart.

When the rheumatic passion (to imitate the phrascology of Sydenham) enters the fibrous structure of the heart and pericardium, an immediate change in its mode of action ensues, but the abnormal movements are too various to be indicated by any single expression. Sometimes the number of pulsations is reduced far below, at others increased far above the healthy standard in the individual; in all cases their rhythm is overthrown, and in most the organ contracts with a violent, convulsive, and inflammatory energy; which is greatly increased by exercise. The patient experiences præcordial pain and anxiety; the general signs of fever are present; lastly, rheumatism of the joints has pre-existed, and commonly ceases as the cardiac symptoms are developed. An attention to other symptoms would seem to be unnecessary.

We have now finished what we at first proposed, the consideration of the Stethoscope in the diagnosis of maladies of the heart, and might here terminate our review. As we are at liberty to presume, however, that our readers, like ourselves, have got their minds turned towards the *treatment* of this important and interesting class of diseases, we shall venture to extend our article beyond the limits originally intended.

But before entering on their therapeutics, it will be proper to study them a little further; and in the first place, of the—

Disorders which they occasion.

The researches of modern anatomists, and especially of Scarpa, have shown the absurdity of those who alleged that the heart has no nerves. It now appears that this organ is abundantly supplied, from a plexus which is made up of cephalic, spinal and ganglionic branches, but chiefly the last. It is thus connected, physiologically, with every other organ, and able to compel them to sympathise in its various affections. We might then, *a priori*, suppose, that in its morbid states, it readily excites disturbances in the functions of the other viscera, and such we find to be the fact. Of these the lungs, having with it such intimate nervous relations, the brain, the stomach, and the liver, are the principal.

But the heart exerts a different and much more powerful influence over the different parts of the body in the æreated blood which it sends into them, and which is indispensable to their life, growth, and active functions. If it performs this duty improperly, disorder of the functions is inevitable; this disturbance is, in general, greater than that effected through the nervous system; but, in varying and undefinable proportions, they are both necessarily present in every case, and often so united that we cannot estimate their respective morbid agencies.

We shall enumerate the principal of these secondary disorders.

1. In the brain and its meninges, we have depression of spirits, pain, vertigo, apoplexy and palsy. Thus, in ossifications of the tricuspid valves, and in passive aneurism of the right ventricle, the torrent in the descending cava, not being received by the heart in due time, the brain becomes engorged, and the maladies which we have enumerated may supervene. We sometime since saw a case of palsy of the parts supplied by the trifacial nerves of one side of the face, that was manifestly owing to this cause. Again. When the left ventricle is hypertrophied, and especially if dilated at the same time, the blood is driven with such impulse into the brain as to disturb its functions, excite pain and inquietude, render the individual unhappy, and finally kill him with apoplexy, or disable him with paralysis. How far the nervous connexion between the heart and brain may contribute to these effects we cannot say, but while a predisposing influence may be charged upon that connexion, the principal

blame must rest upon the undue violence of action in the left ventricle.

We cannot doubt that apoplexy and palsy have been much oftener the consequences of diseases of the heart, than has been supposed. Many autopsic inspections after the former maladies, have not been extended to the chest, where the primary læsion might have been detected, and have, therefore, been reported as original affections of the brain.

We suspect, moreover, that inflammations of the encephalon or its membranes, have frequently originated in the disturbed relations of that organ and the heart. In the closing stages of pulmonary consumption, for example, a mild phrenitis is not a very rare occurrence, and sometimes proves the immediate cause of death. This may, in part, be referred to the influence which an inflammatory state of the lungs can exert upon the brain, through the medium of the pneumogastric nerves; but if the læsion of the pulmonary organ has become so great, as to impede the transmission of blood from the right to the left cavities of the heart, it must necessarily accumulate in the former, and by remora, disturb the cerebral circulation. We recollect a case of pneumonic hepatization, which terminated with exquisitely marked phrenitic inflammation, in which the lungs were so impervious, that it was difficult to conceive how they could have in any degree performed the function of transmitting or æreating the blood.

On the whole we might expect, that in many cases of diseased heart, the morbid anatomy of the brain would present extravasations, adhesions, purulent secretions, hydropic effusions, *ramollisement* or softening of the pulpy matter, and various other ravages.

2. The lungs and investing membranes suffer not less than the contents of the cranium. The nervous connexion between the heart and lungs is quite as intimate as their functional relations. Hence a perverted state of the vital properties of the former, *must* be felt by the latter; and we see it manifested by cough, with or without expectoration, generally the latter, and a spasmodic dyspnœa which frequently resembles asthma. But to the hydraulic connexion of the two organs, we may ascribe a greater number, and those too of a graver character, of the morbid influences which the heart exercises through the respiratory nerves. Thus, if the aortic or left auriculo-ventricular valves, are diseased, the pulmonary veins are unable to empty themselves in due time, and consequently the pulmonary circulation is disturbed. It is, however, the active hypertrophy of the right ventricle, which exerts upon the lungs the most destructive influence, by perpetually injecting its

vessels with too much force and volume of blood. Hence arise engorgements, inflammation, hepatization, hæmoptysis, and cellular extravasation or pulmonary apoplexy. The effect of this hypertrophy upon the lungs is precisely of the same kind, indeed, with that of the hypertrophied right ventricle upon the brain. How many diseases of the pulmonary organ have originated from previous disease of the heart, we have not the means of judging; as when both organs are found, on dissection, in a state of disruption, it is not always practicable to assign priority to the disease of either; but we may fairly presume, that a great number of those symptoms which are vaguely denominated asthmatic, are the offspring of maladies of the heart.

3. Next to the lungs, the liver is morbidly affected from cardiac læsions. This influence is no doubt exerted in part through the medium of the nervous system; but still more of the blame is attributable to the right ventricle. When dilated, with attenuated parieties, it obviously cannot propel forward the blood, with its usual power, and this fluid must, of course, when the circulation is accelerated, accumulate in the auricle and venous trunks. There will then be a struggle between the two cavæ, in which, as gravity lends its aid to the superior, the inferior is liable to be worsted. Hence arise stagnations in the ascending column of venous blood, which, from the proximity of the hepatic veins, are not long in communicating themselves to the liver, and through it to the whole portal system. Thus engorgements of that system, and especially of the liver are established which may eventuate in a phlogistic diathesis, induration, or enlargement. Meanwhile its specific function must be greatly deranged, and hence we find, in advanced states of cardiac maladies, that what are called bilious disorders, are so constantly present, as in some cases to exert an absorbing influence upon the attention of both patient and physician, and may even lead to the opinion, sometimes a correct one, that the disorders in the chest are consequent upon those in the abdomen. This diagnosis, moreover, is rendered plausible, by the beneficial influence which chologogues exert, upon *all* the symptoms under which the patient may be labouring. It is not difficult to understand the mode in which our prescriptions of this class, produce their favourable effects. When a secretory organ is plethoric, the natural cure is increased secretion. In the secondary hepatic disorders now under review, the liver sometimes throws out no bile, at others an excessive quantity, and at others a fluid perverted in its qualities. In the first case by restoring the secretion we diminish the congestion,

and in the two latter cases by altering the actions of the liver, and evacuating the excessive secretion from the bowels, we improve the declining health of the abdominal organs, and thus, through the nervous system, ameliorate the sufferings of the heart.

4. The serous and reticulated membranes fall into disease. In active hypertrophy of either ventricle, the capillary system which it supplies, must of necessity be affected by the impulse with which the blood is thrown into it. The disorders thus generated in the brain and lungs we have already considered. A part of the biliary derangement attendant on cardiac diseases, is no doubt owing to the same cause. On the other hand, when the cavities of the heart are passively dilated, the stasis of the blood in the great veins gives rise to a venous plethora, which may be presumed to extend quite to the capillary origins of that system. We have then, in diseases of the heart, both the sanguiferous conditions, which favour serous effusion. To these we may add the lymphatic remora and congestion, which necessarily result from the relations which the great absorbent trunks bear to the venous system. Thus we have too morbid states, which, in different cases, give rise to increased effusion, and another, which tends to diminish absorption. No wonder, then, that dropsical accumulations and infiltrations, present themselves in all parts of the body as secondary affections in diseases of the heart: In short, that we have anasarca, hydropericardium, hydrothorax and ascites. Of these the last is, we believe, the rarest; which may perhaps be ascribed in part, to the great extent of secreting surface which the abdominal viscera enjoy, and through which the engorged capillary system relieves itself. As to the dropsy of the pericardium, its proximate cause is, perhaps, to be found in the turgescence of the right ventricle, which, preventing the return of blood from the substance of the heart by the coronary veins, necessarily renders them plethoric, and thus promotes effusion into the pericardium. When the left ventricle is actively diseased, and the coronary arteries are inordinately injected, effusion may, likewise, be the consequence; and this injection no doubt frequently produces inflammation of the investing membrane, with secretions of pus, or depositions of fibrin and consequent adhesions.

To what extent the serous membranes are affected from sympathy with the heart, we have not the means of judging; but may presume, that a sympathy of that kind exists, especially within the thorax, which may account in part for the greater frequency of dropsical effusions into that cavity than the abdominal.

Prognosis.

In almost every organic disease, the prognosis must be unfavourable. As yet a method of restraining the the morbid growth or dilation of the heart, retarding the *ramollisement* of its substance, diminishing the deposition of fat, arresting the transformation of its valves into bone or cartilage, or strengthening with new fasciculi of muscle its attenuated parieties, has not been discovered; and until our means of diagnosis shall enable us to detect in their origin, læsions which are only made manifest in their progress we cannot hope to prevent their growth and preserve the parts which they must finally ruin. Hence the great value of the Stethoscope, by which only we can acquire early diagnostic information. But even auscultation is exceedingly limited in the information, which it imparts in the first stages of these (ultimately) mortal derangements. It is some consolation to know, however, that correctly understood and judiciously treated, before they are very far advanced, not a few of them will continue for years or even to the period of old age, without destroying life.

Treatment.

Organic affections of the heart, as we have already said, are incurable, except they be attacked, in their forming stages, and perhaps even then.

For active hypertrophy and aortic aneurism, the method of Albertini and Valsalva may sometimes do good, if resorted to in due time. It consists in bloodletting and starvation, carried as far as is compatible with the continuance of life. It has lately been said, that this method has done harm in vascular aneurism, as it has been found to reduce the strength of the arterial parieties at a higher ratio than the cardiac, and consequently to increase the power of the latter over the former. But this objection will not lie against the treatment, when applied to hypertrophy of the heart. In this malady the disease consists, essentially, in a morbidly increased action of the coronary arteries; and whatever diminishes the flux of blood into those vessels, must, on theory, retard the morbid growth of the parieties. We may even conceive, that under a course of depletion and abstinence, the heart may become atrophous, like the other parts of the system. Still, upon the restoration of the ordinary quantity of blood, the abnormal actions, reduced but not superseded, may revive; and hence we would suggest, as a second part to the Italian treatment, the administration of digitalis, squills, or colchicum; all of which, experience teaches us, are capable of acting on the vital properties of the heart, in such a manner, as to moderate the force and frequency, and alter the rhythm, of its contractions. This, however, they might do without affecting the nutrient functions of the coronary arteries; and, therefore, the effects of the treatment suggested, might be far short of what these cases require.

Softening of the heart appears to be, generally, the consequence of inflammation, either of its substance or envelopes, and may, there-

fore, be arrested by the antiphlogistic measures, which cure other inflammations.

As to fatty, osseus and cartilaginous transformations, of the valves or ventricles, we may be said to be entirely ignorant of any method, by which they can be arrested; unless the first might be kept in check, by the means that are found to retard the secretion and deposition of adipose matter, in other parts of the body.

On the whole, the treatment of læsions and degeneracies of the heart, must be palliative—not radical; and we shall close this extended eclectic review, with a brief enumeration of the means which may be employed for this purpose.

I. A careful avoidance of all causes of excitation, internal and external; moral and physical.

II. Abstinence in diet and drinks. Not carried almost to starvation, as in attempting a radical cure; but so regulated as to produce the following effects:

1. A moderate distension of the stomach only.
2. No inordinate stimulation of that organ.
3. No indigestion nor flatulence.
4. A reduced quantity of blood, with a tendency to leanness or atrophy.

The diet should be chiefly milk and vegetable; and the drinks bland and unirritating.

III. Bloodletting. Never to syncope; nor almost to vascular inanition, as when attempting the permanent cure of aortic aneurism; but to the extent necessary to prevent plethora in passive, and reduce the *powers* of the heart in active aneurism. It must be repeated according to the circumstances of each case. It will in general be rendered immediately necessary by the influence of some violent passion, excessive exertion, or inordinate indulgence of appetite, to which the patient may have been subjected.

When from inordinate action of the left ventricle, in active hypertrophy, the brain as we have seen, is either constantly or occasionally injected, and phrenitis, hydrocephalus or apoplexy is likely to supervene, bloodletting is the remedy upon which our chief reliance should be placed.

When, in a similar disease of the right ventricle, the lungs become engorged and inflamed; or their cellular tissue is becoming hepatized; or they are rendered apoplectic, or attacks of hæmoptysis show themselves, bloodletting is equally necessary.

In passive aneurism, or dilatation without hypertrophy, bloodletting is required, not to reduce the powers of the heart, but to carry off the plethora of the venous system. Many affections of the head, up to venous apoplexy, are the offspring of this species of turgesence, and may be relieved by venesection.

The liver and portal viscera suffer from the same repletion of the venous tubes, and will call for the same remedy.

In passive aneurism, moreover, Mr. Burns has shown us, that inflammation of the heart or its membranes, is an occurrence by no means unfrequent, and this also will demand the lancet.

In all cases of passive aneurism, however, we must recollect, that there is great loss of power in the muscular fibres of the heart, which copious bloodletting would augment; while it could not remove the valvular læsions of the left side nor the pulmonary disorganizations which dam up the blood in the cavities of the heart and promote their unnatural distension; and, hence, in this variety of dilatation, and also in the advanced stages of active hypertrophy, our bleedings should, in general, be moderate—not more than 6, 8, 10, or 12 oz. at once.

IV. Cathartics—both chologogue and hydrogogue. These diminish the plethora of the portal circle, and the upper part of the vena cava ascendans, and indirectly reduce the general plethora. They divert from the head, when it is inundated, as well as from the heart. They remove irritating matters from the primæ viæ, which by their impress would, sympathetically, disturb the actions of the heart, and finally they establish in the bowels a centre of irritation and fluxion, which mitigates the wrong and violent action of the parieties of the heart. In the latter stages they may be carried too far. We should then use such as are known most to promote secretion into the bowels—excretion from them is not then so great an object, as in the earlier periods.

V. Diuretics. In active hypertrophy during the first and second stages, sedative diuretics are among the means of subduing the violent actions of the heart, and of lessening the plethora. In these periods, the nitrate of potash, bitartrate of potash, or bitartrate of soda, the squill and the colchicum autumnale are all proper.

In the latter stages of the same maladies, and in passive dilatations, diuretics are still proper: they diminish plethora and divert from the lungs, then exceedingly embarrassed.

It is, however, the dropsical effusions, which so strikingly characterize the final periods of these cardiac dilatations, whether active or passive, that give their chief value to the medicines of this class. Some of these effusions are probably the consequence of the excessive and irregular momentum of the arterial blood—but the greater number are obviously the consequence of venous stagnations. The exhalent and absorbent vessels, moreover, are probably affected, sympathetically, with the heart. These effusions take place into the pericardium, pleura, cellular tissue of the lungs, ventricles of the brain, peritoneum, and lastly the external or subcutaneous parts, and some one of them, or more than one, perhaps, always occurs before death, if the life of the patient should be long protracted.

When the system is vigorous, these dropsical tendencies cannot be corrected without bloodletting; and on the other hand when that remedy is injudiciously or inordinately employed in cardiac læsions, it favours the production of dropsy.

As to diuretics, those just named are proper when there is much vigour of the system; but in reduced and shattered states, the more stimulating should be employed, such as oil of turpentine, canthari-

des, spirit of nitrous ether, oil of juniper, horse radish, and the tartrate of iron and potash.

VI. Expectorants. These act by carrying off the plethora of the pulmonary vessels. Tartarized antimony, ipecacuanha, squills, colchicum and digitalis are all adapted to this object, when administered under such circumstances as to determine their action upon the lungs. The means necessary to such a determination of their effects are chiefly warm drinks, a well protected state of the surface, and respiring a warm or temperate atmosphere, with the omission of active purgatives.

VII. Counter-Irritants and Revulsants. Mr. Burns recommends a seton over the region of the heart. Blisters to the chest or the extremities might, also, be useful; and both would seem peculiarly indicated in cases of metastasis of rheumatism, gout or cutaneous eruptions, to the heart.

A semicupium or pediluvium often does good, and seems to operate by deriving a great quantity of blood into the lower extremities. Its influence of course is temporary, but might give great relief in violent paroxysms of cardiac and pulmonary embarrassment. In cases of this kind, might not ligatures to the extremities, tight enough to retard the venous blood and cause it to linger in the limbs, be attended with palliation?

VIII. Narcotics and Antispasmodics. Digitalis, opium, colchicum and squills, are observed to diminish the irritability of the heart, and render its contractions slower. In the læsions under consideration, these remedies have all been found beneficial, independently of their effects upon the secretions, and they have done good, it would seem, by abating the excessive sensibility of the diseased organ. It is in consequence of this morbid irritability that the heart is so often in a state of violent, if not powerful, irregular contraction. To this state, if no phlogistic diathesis be present, antispasmodics are adapted, and have been found beneficial. Of these the best are the salts of morphia, assafœdita, sulphuric ether, tinct. of lavender, and ammoniated alcohol.

IX. Tonics and external stimulation. However objectionable tonics may be in most of the stages of hypertrophy and active aneurism, and even in the earlier stages of passive dilatation, towards the close of life when there is great general and cardiac enervation, medicines of this class will contribute to the comfort of the patient. The bitters and chalybeates are then to be administered.

In this stage of these maladies, the circulation is apt to fail in the circumference and extremities, of which coldness, torpor, cellular infiltration and gangrene may be the consequences. In this condition, a hot salt bath, frictions, stimulating liniments, and flannel rollers, may render the patient more comfortable; and postpone the execution of that mandate, from which no human power can grant him a reprieve.

MISCELLANEOUS INTELLIGENCE.

I.—Analectic.

1. *On the Condition of the Blood and Blood-vessels in inflammation.*—Dr. Kaltenbrenner has recently published some interesting experiments which he instituted on these subjects. The successive changes which, by means of the microscope, he observed to take place in an organ at the moment of its being deprived of life, were the following:—On the approach of death, the column of blood in the arteries gradually diminishes in size, till, at last, the vessels contain only half of the usual quantity; the stream is uninterrupted, rapid, and without any visible pulsations, which, however, may be observed after some time, corresponding with those of the heart, and gradually becoming more and more distinct; at last, however, they become unequal and indistinct, and at the same time, the column of blood decreases, till it disappears entirely; the arteries are now quite empty, and organic life is extinct. Whilst the arterial stream is uninterrupted, no disturbance is observed in the veins; but as soon as the arterial circulation becomes unequal and irregular, the blood is accumulated in the veins; and from the moment that no more blood is carried into them, that which they contain stagnates entirely, retaining, however, for some time, an undulatory motion, passing into the branches, and then returning again; these undulations gradually diminish, and become reduced to smaller limits; the globules of the blood are conglomerated, all spontaneous motion ceases, and the mechanical laws determine its further direction. This undulation of the venous blood is observed, not only in dying animals, but also in parts divided from the living body, and in those which, by a very tight ligature, have been separated from the system. In these cases, the arteries are emptied as soon as they receive no more blood; the fluid of the capillary vessels, from this moment, is thrown into undulations, which press the blood towards the veins, and lastly, terminates in complete stagnation. This fact is a decisive proof, that the motion of the blood in the smaller arteries, and especially in the capillary system and veins, is, in some degree, independent of the action of the heart.

It is a general opinion, that after death the blood is equally distributed to all the organs of the body, unless any of them had been the seat of inflammation; this is not the case: in the extremities, the

serous membranes, the lungs, &c. the blood retires from the capillary system into the larger veins, in other organs, as, for instance, in the spleen and liver, the capillary vessels do not completely empty themselves. It is very interesting to observe, that in fishes, the blood of the smaller vessels is not emptied into the veins, but that from the moment when the circulation is arrested, it is infiltrated into the cellular tissue, where it is found in reddish masses; a fact which can only be accounted for, by assuming that these small vessels are canals without proper parietes. In the liver of the frog, the same appears to take place, but not in that of the rabbit, which, after death, is found most beautifully injected.

In the spleen, the small vessels undergo a very singular change at the moment of death. During life, the distribution of the vessels in this organ is very similar to that in the substance of the liver; after death, the same phenomenon takes place as in the capillary system of fishes; the smaller arteries and veins, and the capillary vessels, emit their blood into the cellular tissue, where it is found in red masses; the larger arteries and veins only retain their blood, of which, in the smaller vessels, no trace can be discovered; this accounts for the general opinion that, in the spleen, the aterial blood is poured into cells, from which it is taken up by the veins; at the same time, it explains why all attempts to inject the arteries of the spleen from the veins have failed. Whoever examines the edges of the spleen of the mouse under a microscope, will be convinced that after death the blood of the capillary system is infiltrated into the parenchymatous tissue, but he will never, during life, observe its emission into cells.

On examining, after death, the mucous membrane of the small intestines, it appears even to the naked eye, that a small portion of the blood is retained in the capillary vessels, the rest being carried into the larger veins.

The changes which the circulation of inflamed parts undergoes after death, is very different from those observable in healthy organs. The blood is conveyed from all parts with accelerated motion, towards the centre of inflammation; the arterial is not changed into venous blood, and its coagulatory power is much increased. If in this state death takes place, the column of blood in the surrounding vessels diminishes in size, and the blood accumulates in the inflamed part, so that at last the peripheric vessels are perfectly emptied; at this moment the circulation ceases, but for a considerable time afterwards undulations are visible, by which the blood is gradually carried towards the centre of inflammation, and which insensibly terminate in stagnation. This motion, subsequent to the death of the animal, is also observed in the newly formed vessels. In a lesser degree of inflammation, the blood is only accelerated in its motion, and does not approach to a complete stasis; the centripetal undulations are also visible; but ultimately the blood is carried into the veins.

In such cases the inflamed parts exhibit hardly any redness after death.

It appears, that in some organs, inflammation is more disposed to form the inflammatory centres described above, than in others; in the latter division, to which the serous membranes seem especially to belong, exudation is most frequently observed. If cold water is injected into the peritoneal cavity, inflammation is soon excited, and quickly followed by exudation; the afflux of blood is so violent, as to make the membrane appear like a net work of injected vessels; from the moment that life ceases, the blood gradually leaves them, and is completely poured into the veins, so that, after death, but very slight traces of the preceding inflammation can be perceived.

The abdomen of an animal being opened, or its intestines and mesentery being drawn out, the contact of atmospheric air soon causes inflammation, which increases very rapidly in the mesentery, but slowly in the intestines. When, however, it has arrived at a certain pitch in the latter, it suddenly diminishes in the former, and gradually subsides, till at last its vessels are emptied, and the inflammation is confined to the intestines alone. The same phenomenon takes place if the mesentery is first irritated, and the intestine is afterwards exposed to any exciting cause. It seems, then, that inflammation is much more readily excited in the serous membranes, than in the organs which they envelope, but that it subsides very rapidly, and in the same proportion as it increases in the intestines. The tissue of the lungs appears also to be little disposed to form inflammatory centres, while in the liver the contrary obtains. The circulation of the latter organ is, even in the state of health, very slow and favorable to considerable accumulation of blood; in inflammation it is first accelerated, but gradually retarded, and lastly, a complete stagnation takes place. The same is observed in inflammation of the spleen.

Violent inflammation of the mucous intestinal membrane, often leaves no traces whatever; the blood with which, during life, the capillary vessels, were gorged, is, after death, so completely conveyed into the veins, as to render this membrane almost as pale as in its healthy state; this is even most striking in the most acute inflammation, so that, in this respect, the mucous are apparently very similar to the serous membranes.

When the capillary vessels are wounded, scarcely any extravasation appears to take place, only a few globules escape, and the circulation through the wounded vessels is not at all disturbed, but continues as before. If very small arteries are divided, the hæmorrhage is also very trifling; but the blood ceases to circulate through the wounded vessels, and passes entirely into the arterial branch next above the division. When a larger artery is divided, a considerable hæmorrhage ensues from the two ends, and the blood of the neighboring arteries is seen moving towards the wound as towards a centre; after some time, an undulatory motion is observed in the ends of the arteries; so that, at one moment, the blood moves towards the point of division, and, in the next, returns into the vessel; these

undulations gradually decrease, till the movement of the blood, towards the divided extremities, ceases entirely, the blood being carried through the next arterial branches.—*Am. Jour. Med. Sci. No.* 6.

2. *On the Coagulation of the Blood.*—Dr. JOHN DAVY relates a number of interesting experiments on this subject in the *Edinburgh Medical and Surgical Journal*, for October, 1828. The following are his conclusions. 1*st*, The coagulation of the blood takes place independent of motion, and it is very little effected by motion, whether violent or moderate; 2*dly*, That it is not caused by the action of atmospheric air, or much affected by any kind of air that is not absorbable in water; 3*dly*, That it is not retarded by the introduction and absorption of carbonic acid gas; and *lastly*, That the action of reagents on the blood, or the fibrin of the blood, as regards coagulation, is exceedingly various, not to be anticipated *a priori*, and inexplicable on any one hypothesis hitherto advanced, the effect of each of them requiring special consideration, and further and minute experimental enquiry for its elucidation.—*Ib.*

3. *On the Therapeutic Properties of the Morphine.* By V. BALLY. —A little bitter taste in the mouth, is according to M. Bally, the only effect produced on the mouth and œsophagus by morphine. "It occasions no thirst, redness of the tongue or gums, or swelling of the tonsils. When given in moderate doses, morphine produces no loss of appetite or any other disorder of the digestive functions; wherein it differs greatly in its effects from belladonna. In most constitutions, however, it produces vomiting, if administered in full doses. This property it appears to possess in a very high degree, which is a great obstacle to its being used as a medicine. To avoid this effect, the dose at first should be very small, and should be very gradually and cautiously increased.

"The principal effect produced by morphine on the intestinal tube is constipation; hence it may be advantageously administered in cases of diarrhœa. But M. Bally has known several instances, where, after producing a constipated state of the bowels at first, a continuance of the medicine has brought on an abundant discharge of fecal matter. It sometimes produces colic pains about the region of the naval, but these are generally of short duration; and they cease of themselves, even when the medicine is continued, if the dose be not regularly increased. The author has some reason to consider the medicine as a vermifuge also, and he relates cases, where under its use, worms have been discharged by vomiting. It is not improbable, however, that if any other emetic substance had been administered in these cases, the same effect would have resulted. He has examined the intestinal canal in some instances in which morphine had been taken, but he could never discover any particular effects produced by it on the mucous membrane, probably owing to the smallness of the doses.

"With respect to the urinary organs, the action of morphine is very decided on the bladder. In almost every instance it produces a difficulty of passing the urine, and this amounts sometimes to a complete retention; but the dysuria generally ceases as soon as the medicine is omitted. This property of morphine, however, only manifests itself in men: M. Bally remarks that the remedy never produces the least difficulty of passing the urine in females. This is an extraordinary physiological fact. Morphine produces no sensible effect on the kidneys. The secretion of urine neither increases nor diminishes under its use, nor does the quality of the fluid become sensibly changed.

"M. Bally states in positive terms that the vascular system is by no means excited by the exhibition of morphine in moderate doses. He thinks that the reason which has induced some physicians to consider the remedy as an excitant has been from observing its effects where very large doses had been administered, and where the functions of the circulating system were disturbed in common with those of all the other organs. The author relates several cases in support of his opinion respecting this point; and in conclusion he states, that if the remedy have any effect at all on the heart and arteries, it is a sedative, not an exciting effect.

"In the next place we are informed that morphine has no tendency to produce hemorrhoids, that has no emmenagogue properties, that it will not provoke nasal hemorrhages, nor produce hemoptysis, that it will not allay cough in a satisfactory manner, that it is not diaphoretic, that it has no influence in the production of heat, that it will not oppress respiration, that it produces no flushing of the face or symptoms of asphyxia.

"The exhibition of morphine gives rise, in very many instances, to an intolerable itching of the skin. The irritation in some cases extends all over the surface, in others it is partial, confined more particularly to the nostrils, neck, loins, and the genital organs. The itching is not uncommonly accompanied by a cutaneous eruption.

"The brain and nervous system are the parts upon which morphine exerts its influence most particularly.

"Trembling and agitation of the muscular system are symptoms sometimes produced by the remedy, if continued for a length of time. It has also the property of occasioning dimness of sight, which renders it an improper remedy in amaurosis. M. Bally, having never administered morphine in very large doses, cannot speak with positiveness whether or not it have the property of occasioning dilatation of the pupils, but his opinion is that it has not. A young man took, in a mistake, a pill containing three grains of it; in this case no dilatation of the pupils took place. In cases of poisoning with opium, we have witnessed the pupils contracted to the apparent size of pins' heads. The author has noticed similar effects produced by the acetate of morphine. MM. Orfila, Magendie, Dupuy, and Ba-

thelemy state that the pupils invariably dilate in experiments with morphine on animals. Respecting this fact, M. Bally observes that the iris of dogs, cats, and horses has a mobility much greater than that of man.

"Morphine appears to possess all the sedative effects of opium, and the action of both on the system is very similar. The former, however, is not liable to produce head-ache and the other symptoms of excitement which usually follow the exhibition of opium. The stimulating effects of opium have been generally attributed to the narcotine which enters into its composition; but some chemists are of opinion that the latter substance is nearly inert when deprived of morphine, and that the stimulating properties which it appears to possess when administered to animals, depend upon some portion of morphine remaining in combination with it. It is scarcely necessary to notice that a combination of these two substances may possess medicinal properties very different from those of either singly. Although pure narcotine may be inert in its effects on the system, still by its combination with morphine its latent properties will be developed, and will modify the therapeutic properties of the latter substance.

"Morphine and its salts have not yet found their way into general use amongst medical men. This is rather to be regretted, as their medicinal properties are, so far as observation has hitherto proved, better adapted than those of opium, for the purposes for which this is usually administered.

"In the production of sleep, and in some other effects, M. Bally says that there is no proportion between the therapeutic properties of opium and its extracts, and those of morphine. Fifteen grains of crude opium contains, on an average, one grain of morphine. According to this proportion, it might be expected that a given quantity of morphine would have fifteen times the effect on the system that the same quantity of opium would produce. This is however by no means the case. M. Bally observes that it may be admitted, as very probable, that a grain of the aqueous extract produces greater drowsiness, than a quarter of a grain of its salifiable base. This is a circumstance well worthy of attention.

"In summing up his observations on the action of morphine, M. Bally divides its effects into the direct and indirect. The former are nausea, vomiting, gastralgia, eructations, constipation, and intestinal pains: the latter are ischuria, itching, and all the cerebral symptoms. It is to be observed, however, that most of these symptoms occur only when the remedy is administered, in large or frequent doses. There is one very important advantage likely to result from the employment of the active principles of vegetable substances as therapeutic agents, namely, that they may be introduced into the system through the medium of the skin, in sufficient quantities to affect the constitution. Independently of the difficulty with which we some-

times meet of persuading individuals, particularly children, to take medicines, the stomach is often so irritable, as to reject every thing in the form, or under the name of medicine. M. Bally says that he has met with great success in administering the active principles of some remedies in this way, which he calls the *sub-epidermic* method. It consists in removing the epidermis by means of vesicatories, and in applying the active substances to the surface of the true skin. Of two persons affected with *chiroplegia*, or paralysis of the hands, the one was cured by the action of a grain and a half of strychnine, administered according to this method daily; the other had recovered the use of one hand entirely, and very nearly the entire use of the other when M. Bally wrote his memoir. Morphine in particular produces wonderful effects in rheumatism, lumbar neuralgia, and sciatica, when employed according to the sub-epidermic method. It always gives ease, as soon as it is brought in contact with the skin; and patients complain of great torments when its employment is discontinued for any time." *Memoires de l'Academie Roy. de Med.—Ibid.*

4. *On Strangury from Cantharides, and its relief.* By JOHN DAVY, M. D. &c.—"Strangury from cantharides, especially when applied to the skin for the purpose of blistering it, is of such frequent occurrence, and generally of such short duration, that it is commonly thought little of; and I hardly know which has received least attention from systematic writers—the explanation of the affection or its relief.

"To those who are conversant in hospital practice, and who apply themselves to pathological anatomy, it must be well known that this kind of strangury is connected with phlogosis of the lining membrane of some part of the urinary passages. I have observed it most frequently in the pelvis of the kidneys, and in the bladder of urine, and occasionally in the ureters, and in the upper part of the urethra. The part affected with inflammation is swollen and dark red, from blood extravasated into the cellular structure, under the epithelium. Sometimes, when the effect is most severe, blood, it is well known, is actually effused into the passages themselves, giving rise to bloody urine. Sometimes on the contrary, when the effect is slight, œdema, with very little redness of the mucous membrane is produced, unattended with strangury or any symptom indicating the specific action of the cantharides on the parts in question.

"During the prevalence of strangury, I need not observe the secretion of urine by the kidneys is either much diminished or almost totally suppressed:—At the same time, from the irritation of the bladder, a constant desire urges the patient to attempt micturition.

"The experienced practitioner can have little faith in the means commonly recommended for relieving this painful affection; such as the camphor mixture, *spiritus ætheris nitrici, &c.* Those

who have tried these medicines most, if I may draw an inference from the result of my own observation, must place least confidence in their efficacy. The only means of relief which I have found almost constantly to succeed, is the introduction of the catheter, used not with the idea of drawing off urine, but for the purpose expressly in question. It should be employed with delicacy and caution, just slipped into the neck of the bladder, and kept in only a few seconds. The process is seldom very painful, and the relief is almost immediate.

"The rationale of the effect I shall not attempt to explain, as I have nothing but conjecture founded on analogy to offer on the subject."

Edin. Med. and Sur. Jour. Oct. 1828.—*Ibid.*

5. *On the tests by which Morphine may be made known in cases of Poisoning.* By V. Bally.—"The substance vomited by a dog which had been made to swallow twelve grains of acetate of morphine was a colourless fluid, without odour, slightly viscid. It turned frothy by agitation with solution of gum. It was about three ounces in quantity. Submitted to evaporation in a porcelain cup, it gave a small quantity of yellowish extract, of an odour of juice of meat, of a bitter taste, a little saltish, and it reddened tournesol paper. This extract, treated with boiling alcohol, separated into two portions, the one floculent, insoluble, formed of the mucous and gelatinous matter; the other, soluble in this liquid, was evaporated to dryness. The latter, redissolved in a little water, let fall floccules of greasy matter. Submitted to slow evaporation, the aqueous solution gave a deposit of prismatic crystals, of a yellow colour, which presented the followtng properties: they had a bitter taste; a solution of them in water precipitated, by the addition of ammonia, in white floccules Treated by concentrated sulphuric acid in a small glass tube, they disengaged a decided odour of acetic acid.

"Dissolved in weak nitric acid, these salts immediately gave a dark yellow solution, approaching to the colour of blood.

"This union of properties proved clearly that these crystals were acetate of morphine. The quantity obtained was about three grains.

"The stomach of a cat which had been poisoned by twelve grains of acetate of morphine was boiled for ten minutes in six ounces of distilled water. The filtered liquor was evaporated and treated with alcohol in the way already mentioned. The alcoholic solution was slightly yellow, and it furnished by evaporation an extract of a similar colour, only a little darker, of a saltish taste, followed by bitter, which manifested, by the addition of a few drops of nitric acid, a good yellow orange colour, approaching to red; phenomena which proved the existence of a small quantity of acetate of morphine.

"But it is remarkable that, in some instances, these reagents will not enable us to discover any trace of morphine in the stomach, intestines, heart, or in the blood taken from an artery a few minutes before the death of an animal which has been poisoned by this substance. A hound was poisoned by twelve grains, but no trace of it

could be recognized in any of those parts. Two kittens died from the injection into the stomach of a solution of acetate of morphine, the one of five, the other of eight grains. The stomach of that which had received five grains showed unequivocal traces of the poison, easily distinguished by the reagency of nitric acid; whilst in the other nothing of the kind could be discovered. From these facts and several others of a similar nature, M. Bally concludes, 1st, that it is possible in many cases of poisoning, to discover, by chemical means, sensible traces of vegetable poison; 2d, that it is always in the viscera to which the poison is first applied that we are to look for its presence; 3d, that the matter thrown up by vomiting shortly after the injection of the poison into the stomach contains sensible quantities of it; 4th, that all the efforts made to discover it in the blood have been fruitless.—*London Med. and Surg. Journal, Oct. 1828, from the Memoires de l'Academie Royale de Medicine.*

6. *On the influence of Mercury on the functions of the Uterus.* By ALEXANDER COLSON, M. D. formerly House Surgeon of the Hopital des Veneriens, &c.—The functions of the uterus, both in a state of menstruation and impregnation, are often disturbed by strong medicinal agents; and as mercury is used in this country, to a greater extent than in any other, excepting, perhaps, America, it may be interesting to inquire, what are the effects of this medicine on the uterine functions? Such inquiry can best be prosecuted in a Lock-Hospital; and it is to this subject Dr. Colson has directed his attention.

The uterine derangements produced by mercury, he observes, are, mænorrhagia, amenorrhœa, and abortion. These effects Dr. C. illustrates by a series of cases, one or two in each class we shall briefly state.

1. *Mœnorrhagia.* A young woman, 18 years of age, was received into hospital on the 17th October, for the cure of vegetations about the labia. She had been regular in her menses for four years previously. She was put on the use of Van Sweiten's liquor, (solution of oxymuriate of mercury,) and eight days afterwards complained of pains in the abdomen, but especially in the loins and hypogastrium. The menses came on eight days in advance, and they continued to flow during more than two months that she remained in hospital. The mercury had no effect on the vegetations. They were excised—and in eight days afterwards, the patient was discharged cured. Four or five other cases are detailed, showing the mænorrhagic influence of mercury; but the above is a sufficient illustration.

2. *Amenorrhœa.* C. Virginie, aged 19 years, had contracted a syphilitic complaint, three months after she went on the town. She entered the Venereal Hospital, and was put on the use of the oxymuriate, which affected her mouth. Hitherto she had been regular in her courses; but now they stopped, and continued so all the time she was at the hospital. Two applications of leeches to the vulva

were made in vain, as well as sinapisms, pediluvia, &c. She continued nearly three months in hospital, and left it in a state of amenorrhœa and general bad health, though the syphilitic complaint was cured. In about six weeks after she left the hospital, the menses reappeared. Six other cases of a similar kind, are detailed by the author.

3. *Abortion.* A female aged 24 years, six months pregnant, was received into the hospital, in the month of October, for the cure of gonorrhœa. She was subjected to *mercurial frictions!* At the end of a fortnight of this treatment, she complained, that she no longer felt the motions of the child, which previously were very distinct. She also complained of a sense of weight at the lower part of the abdomen, and in the groins. This state continued three or four days, and ended in the abortion of a fœtus dead, and apparently of about seven months.—ARCHIVES.

This case is followed by five others, where the premature expulsion of the fœtus was reasonably referable to the exhibition of mercury. The author remarks, that miscarriages are very common in the Venereal Hospital of Paris, though this accident is usually attributed to the syphilitic complaint, and not the mercury employed for its cure. Dr. C. is of a different opinion, and attributes the abortions to the mercury. We do not deem it necessary to enter into the reasonings adduced by our author, respecting the modus agendi of mercury on the fœtus. The facts are of more value than the arguments; and, as far as these facts go—and they are not very few in number—they offer fair testimony of the injurious effects of mercury on the functions of the uterus. How far the particular mode of administration in the Parisian Hospitals, may increase these bad effects of mercury, we are not able to determine, but this short notice of a lengthy memoir may convey some useful precautionary hints to the English practitioner.—*Med. Chir. Rev.—Ap.* 1829.

7. *Cataract and Glaucoma.*—There are now 23 cases of cataract attending at this hospital, (*the royal Westminster Ophthalmic,*) some lately operated on, others in more advanced stage of recovery, and a greater number either undergoing, or awaiting treatment or operation. In three cases the cataract is combined with glaucoma. Those students who have attended for even three months, have been able to point out the complication with the greatest ease. Mr. Guthrie has on several occasions lately described the difference between them. Where glaucoma existed he said,—"the disease usually came on about the middle period of life, from 45 to 55. In women, it generally followed the cessation of the catamenia, and was a point of great importance to be attended to at that period, inasmuch as most of the defects of sight which women laboured under about that period might be attributed to some negligence in their treatment at this time. Pain is usually felt in the head at intervals, which soon becomes fixed over the eyes, and on the side of the head, sometimes

over one temple and eyebrow, sometimes on both; this is often excruciating, and with its increase the sight fails. At the end of from two to three years, the pains cease of themselves, even where no medical assistance has been sought; but not before the sight has been destroyed." It was very remarkable, Mr. Guthrie said, that Nature seemed to be satisfied with the mischief done, as soon as vision was lost; the pains then ceased, and the sufferer remained in comparative comfort, save that sight was gone. During this period, several slow, gradual changes took place in the internal structure of the eye, accompanied by corresponding external appearances. The cornea became very early less brilliant, the iris slightly discoloured, the sclerotica gradually changed from its natural white, to a yellowish, or even a shade of a leaden colour; tortuous vessels of a dark red colour slowly developed themselves at the circumference of the eye, spreading out their ramifications as they approached the cornea, which was frequently surrounded by them, the vessels seeming to penetrate, or in other words, to come out from within at a very little distance from it. Whilst these changes were going on, others of more importance were taking place within; the choroid coat was becoming varicose, the retina thicker and opaque, the iris irregular, the pupils fixed irregular, and dilated; vision daily decreasing. At last the lens becomes opaque, and of a greenish colour, is protruded against the iris, which is convex in appearance, and apparently changed in colour as well as in structure, and is pressed forwards against the cornea; or the pupil dilated irregularly to its utmost extent, leaves scarcely a distorted ring of iris visible at the edge of the partially obscured cornea through which it is seen. The eyeball is harder to the touch. The patient has now lost all sense of light, but is free in general from pain. *Ibid.*

8. *On small doses of oil of turpentine for the cure of sciatica and other neuralgiæ.* By M. Martinet, M. D.—The employment of terebinthinates, in affections of the nerves, is of very ancient date; but it is only in modern times that the essential oil of terpentine has been fairly put to the test of experiment in the neuralgiæ, of which sciatica is one of the most obstinate and intractable. M Martinet has lately given an exposition of the results of his experience in 70 cases of sciatica, or other severe neuralgiæ of the extremities, where the oil of terpentine was employed, but in small doses—namely, about a fluid-drachm in the 24 hours, and taken at three different times. In this way, it seldom acted on the bowels; but generally produced a sense of heat in the stomach, and throughout the whole line of the intestinal canal, and occasional perspiration. A similar sensation was usually experienced in the nerve affected. The vehicle of exhibition was honey, syrup, or, what was the best of all, a mixture of syrup and calcined magnesia. The yolk of an egg is also a good ingredient in the vehicle. Where the digestive organs were very irritable, a few drops of laudanum were

added. The modus agendi of turpentine in the cure of sciatica, or of any of the neuralgiæ, is quite unknown, and, therefore, we shall not waste time in discussing that point. The *resumee* of our author's experience with this remedy is as follow.

Of seventy patients who laboured under sciatica or other severe neuralgiæ of the extremities, fifty-eight were cured—namely, three by frictions, and fifty-five by the internal administration of the turpentine. Ten experienced only a more or less durable relief—and five derived no benefit whatever from the medicine. Two out of these last laboured under disease of the hip-joint, under which they ultimately sank. Of these 70 cases, 40 were acute, and 30 chronic. Of the 40 acute cases, 34 were cured—five were relieved—and one received no benefit. Of the 30 chronic cases, 24 were cured—two were relieved—and four remained without any mitigation of their complaints. Of the 58 patients who were completely cured, 34 were cured in less than six days—22 within twelve days—and three within six weeks. Of these 58 cures, 48 were cases of sciatica, two of which were cured by frictions. Three were crural neuralgiæ—four were brachial—and three facial. In the 10 cases which were only relieved (all of which were cases of sciatica) the treatment was suspended after the second day. In 21 cases, heat was felt along the tract of the nerve and in the limb affected; and 19 of these were completely cured. In 18 cases, heat was felt in the stomach and bowels. Three were affected with vomiting—but these had taken a larger dose than usual of the oil. Three had diarrhœa and colic. In five instances, the urine was augmented—four had dysury or strangury. In ten instances the perspiration was augmented. In one case, a degree of intoxication was produced—and in two others, a puritus was experienced over the body.—*Revue Med.-Ib.*

9. *On the form of the face and forehead; with a theory of their formation in different ages and nations.* By Dr. Milligan.—The figure of the face and forehead must, of course, depend upon that of the bones beneath, but the mode in which these are developed, and the relation which their developement bears to that of other bones of the body form the subject of Dr. Milligan's inquiry. Our ingenious author maintains that the evolution of the facial bones is governed by the following general laws:—

1. The external and internal plate of a flat bone are two different, distinct organs, merely connected with each other by diploe, as muscles are by cellular membrane, but each having an office corresponding to the organs contiguous to it.

2. Wherever those contiguous parts follow different laws of growth, the quicker growing bone separates from the slower, and leaves a space which is filled up by diploe, if no mucous membrane is near, and lined by mucous membrane, when that tissue is in the vicinity.

3. That this membrane presents the formation of diploe or cancelli, and, consequently, is the immediate cause of those sinuses that excavate the bones of the face.

4. Dr. Milligan proves, that the difference between the growth of the brain, which stops at the 7th year, and the growth of the face bones, which stops not till the 21st year, is in every case the cause of such separation, admission of mucous membrane, and formation of facial sinuses.

Hence nations or individuals that have the brain soon brought to the full growth, must have these facial sinuses large and the cheek bone wide, and the reverse. Hence, also, the large heads and small faces of Hydrocephalus are easily explained.

We subjoin the passage from the original work, which is now furnished with a copious alphabetical index, and some valuable plates and tables.

"The developement of the internal table of the skull, and, consequently, of the *frontal bone, follows the development of the brain; but the developement of the external table of the frontal bone follows the developement of the bones of the face.* Now, the brain we have seen, arrives at its full size in the seventh year; which, therefore is the period of completing the development of the internal table of the frontal bone. But the bones of the face continue growing to the twenty-first year; and hence it is, that anatomists find the dimensions of the frontal sinus go on increasing to that year; and the same authors generally find the sinus commence at the seventh year, because that is the time at which the nutritious arteries of the internal table cease to do more than support its vitality. Suppose that the day, or week, or month, after this has happened, a *line* in length and a *line* in breadth is about to be added to the external table by the arteries, in order to preserve its congruity with the transverse suture, which is still growing. It is manifest, that the arteries which make this new interposit must lay down their bony matter a line farther forward than before; while the absorbents, whose modelling action necessarily accompanies deposition, will remove that part which was in contact with the diploe from the now fixed vitreous table, in which no corresponding tendency to continue the union by diploe will be excited, even should points of diploe be thrown out by the still continued formative efforts of the vessels of the external table. Nay, these efforts soon must become abortive from another cause. Bichat has shown that the cells of diploe are without any membraneous lining—its plates are themselves bony membranes. When, therefore, the arteries of the anterior table advance its position forwards, to make it coincide with the nasal bones, an opening is offered behind, into which creep the vessels of the Schneiderian membrane which is in immediate contact at this point, irritated by the change of position, and at the same time equally rapid in their depositing action with the vessels of the external table. Hence, a membrane is rapidly shot into the nascent hollow, or *sinus*,

which attaching itself to the outer aspect of the vitreous table, and to the inner aspect of the osseous table, forms an insurmountable obstacle to the rudest diploe that might join these two layers. For it is a mucous membrane, a class which scarcely ever forms adhesions, and is here almost a shut sac, whose sides are every day brought farther and farther asunder.

"I would rather say, that it is a similar penetration of this mucous membrane that forms the other cavities in the bones of the face, than that this cavity of the forehead is formed according to the model and for the same uses as those of the face, though both views are in some measure true. These cavities augment the sound of the voice, and, by rendering the bones hollow, equipoise the occipital prolongation so exactly upon its condyles that the weight of a small coin is often sufficient to turn the balance. To man alone are given posterior lobes of the brain, and he alone requires a projection of the anterior lobes, and corresponding facial bones, to balance the former—a state rendered doubly necessay by his erect position; but had those facial bones been solid, a useless weight of three or four pounds would have been superadded, producing a most injurious preponderance, and defeating the ends of nature.

"Thus, then, we have the true theory of the frontal sinus, and it becomes easy to explain what have hitherto been named anomalies."

Ibid.

10. *Pathology of Muscæ Volitantes.* By Dr. Parfait Landraw.—The following fact is so very curious, that had the statement not been verified by three or four respectable physicians and surgeons, we should have been inclined to view it as possessing the same kind of authenticity as that which is attached to Mr. Liston's lectures on aneurism, in the Lancet.

On the 17th August, M. Gally, physician of the perigneux hospital, brought to the author of the case, M. Audebert, an old magistrate, aged 70 years, who complained of having a derangement in the sight of his right eye, which gave him much inconvenience for some years past: namely, muscæ volitantes, black specks, and other images assuming various forms. On examination, the pupils were found to be rather contracted; and, when Dr. P. looked attentively into the posterior chamber of the right eye, Dr. P. could perceive numerous small bodies floating about in the posterior chamber of the eye, glittering with a kind of phosphoric brilliancy. The Doctor at first distrusted the evidence of his own senses, and proposed a dilatation of the pupils, by means of belladonna, which was effected, and then M. Gally and himself, together with M. Renaud, surgeon to the hospital, and Dr. Vidal, had a full opportunity of clearly observing the corpuscles above mentioned floating about in the posterior chamber of the eye, when the eye was in motion, and settling down, so as almost entirely to disappear, when the organ was quiescent. These phenomena could be distinguished by the naked eye; but, to remove ambiguity, a lens of some power was employed, and the same facts were verified.

We need hardly remark, that muscæ volitantes have been hitherto accounted for in a manner very different from the above. They have been attributed to a particular condition of the internal membranes of the eye to varicose vessels expanded on these membranes, or in the humours of the eye—and to an affection of the retina. Demours, however, has observed that these muscæ volitantes arise and subside, according as the eye is in motion or at rest—a fact which accords with the phenomena that appeared in the present case.

There is one difficulty in supposing that these bodies are located in the vitreous humour of the eye—namely, the cellular structure of that humour. Our author endeavors to get over this difficulty, by supposing that the cellular texture of the humour is broken down before the muscæ volitantes take place. There is no doubt that the vitreous humour is occasionally found so fluid as to escape in operations on the eye. The case is very curious, and should attract the attention of oculists and others to the subject. The occurrence of muscæ volitantes is very common, and, therefore, opportunities for observation will not be rare.—*Revue Med.—Ibid.*

11. *Tartar on the Teeth.*—Many hypotheses have been published respecting the nature and source of the earthy material which accumulates on the teeth, termed tartar.

Professor Berzelius, in a work on animal chemistry, says, when it first settles on the teeth it is mere hardened mucous, and that during its decomposition, phosphate of lime is produced, which adheres firmly to the enamel. M. Serres says that it is secreted by minute distinct glands, and not a deposit from the saliva. Professor Hertz, in his popular treatise, considers it a consolidated morbid secretion of relaxed or irritated gums; and many dentists attribute it to decomposition of animal and vegetable food lodged between the teeth. Mr. La Beaume has lately ascertained, by microscopical examination, that this collection is produced in the same manner as coral, by animalculæ resembling the *medreposa oculata.* By means of a solar microscope of strong magnifying power, we have seen them in a very lively state; and, from the cellular organization of the tartar, we have no doubt of the correctness of Mr. La Beaume's theory. The same has been observed by Mr. Cooper, a scientific chemist and geologist of London. Mr. La Beaume is decidedly of opinion that, after the tartar, which, like coral, is a mere nidus, adheres firmly to the teeth, the animalculæ burrow into the teeth, and, by insinuating themselves between the teeth and gum, occasion disease in both; but the secretion from them is often so offensive as to contaminate the breath. Mr. La Beaume has made numerous experiments with different mineral, vegetable, and animal acid, and with alcohol, to ascertain their effects on the animalculæ and on their habitation, and it is a curious fact, that of all the articles he has employed, the true *vinegar* acid, (not the pyroligneous

acid, which is now generally sold for it,) almost instantaneously killed the animalculæ, and acted powerfully in decomposing the concretions, so that they were easily removed by a brush. The more powerful acids, in the same state of dilution, and alcohol, seemed to have little effect on the animalculæ. In order to destroy the animalculæ and their eggs, and to decompose the production which protects them, Mr. La Beaume recommends the teeth to be brushed every morning with the *vinegar* acid, (acidum aceticum *verum*,) diluted with rose water, and immediately afterwards to make use of the levigated areca nut charcoal, as recommended by Professor Hertz, in his popular Treatise on the Management of the Teeth.

The use of the diluted acetic acid every morning will, in the course of a few days, entirely remove the tartar, and the regular employment of the areca charcoal and tincture of rhatany every, or every other morning, will effectually prevent the generation of the animalculæ.—*Bost. Med. & Surg. Jour.*

12. *New mode of administering Quinine.*—Four cases of facial neuralgia, which resisted the ordinary treatment, yielded to the administration of one grain of powdered quinine, in two grains of snuff, mixed and used as common snuff. This dose was always sufficient, and in from two to three days the patients were cured, as if by enchantment. The cases occurred to Dr. Richet, of Metz, and are related in his thesis presented to the faculty of medicine of Strasbourg.—*Ibid.*

13. *On the supposed Existence of Active Molecules in Mineral Substances.* By Robert Bakewell, Esq.—In our last number, p. 200, we published a notice of the supposed discovery, by Mr. Brown, of active molecules in mineral substances. We felt well convinced at the time that there had been some error, being aware of the numerous ones to which microscopical researches are liable, and we are now happy to point out some interesting observations and experiments by Mr. Bakewell, which disprove this imagined discovery, and show some of the circumstances from which it probably originated. "I have made," says Mr. B. "repeated observations on several mineral substances, which Mr. Brown says are chiefly composed of these active molecules; and though in some instances I was at first persuaded that I had seen the motions of the molecules similar to those of the smallest species of Infusoria, a more careful examination proved that I was mistaken, and that the motions were derived from causes that had not been properly appreciated. In these experiments it is absolutely requisite to employ fresh distilled or fresh boiled water. The Thames water and water in cisterns generally contain numerous animalcules. I chiefly made use of single lenses from one-twelfth to one twenty-eighth of an inch focal length, varying in magnifying power, from 100 to 220

times in linear dimensions: the use of the compound microscope is, I think, inadmissible in such delicate observations. With the lowest of the above-mentioned powers, a particle less than one-twenty-thousandth part of an inch in diameter is distinctly perceptible, and the form of a particle of twice that diameter may be observed. To make use of higher powers than what are absolutely required, renders the examinations more difficult, and the result more uncertain.

"To obtain glass in a highly comminuted state, I took the powder-blue used by laundresses, which I still further triturated. The small portion of the oxide of cobalt which enters into the composition of this glass, could not be supposed to paralyse the action of the molecules, as all the metals that can be reduced to powder and are said to contain these active molecules.

"By making use of powder-blue, I had the advantage of seeing when all the larger particles were deposited. Among other substances which I more particularly examined, were finely powdered adhesive slate, mountain cork, quartz, flint, and kaolin, from a specimen of the best kind used in the manufacture at Sevres, given me by M. A. Brogniart. When a drop of water containing any of these substances was placed under the microscope, I perceived particles in motion, which continued for some time, and then was scarcely discernible, but on laying my hand upon the table the motion recommenced, and was evidently produced by a current in the drop; although many particles appeared to be more influenced by it than others, which occasioned a change in their relative positions. Hence I became convinced, that in order to make the experiment properly, the microscope should be placed on a support not liable to be effected by vibrations of any kind, and I therefore placed the instrument on a support made for a telescope stand, so constructed as to prevent vibration when examining the more delicate double stars. I found that even the pulsation of my body occasioned an oscillatory motion of the particles, when the microscope was placed upon a table. After repeated trials, I became satisfied that whatever motions may appear to take place among the particles, for some time after the drop of water is first placed under the microscope, they will soon subside, if not kept up by agitation from external causes. In London, as an excellent practical philosopher, the late William Nicholson justly observed, it is scarcely possible to avoid the effects of vibration; this may be seen by the continual tremors visible on the surface of mercury placed in a basin. Now, if the particles of dust that fall on the surface of the mercury could be brought under a powerful microscope, they would appear in constant motion. Let us suppose the mercury to be changed for water, a similar effect will take place, and the particles that may sink under the surface will represent the particles of dust in a single drop; and Mr. Brown informs us that the whole of the London dust is composed of active molecules. I am fully convinced, however, that their activity in a drop of water, as well as when dancing in the sunbeam, is derived

from external agitation. The very force of gravity constantly drawing the particles downwards must not be overlooked, for it is not contended that the vitality of inorganic particles is sufficient to keep them permanently suspended in water. The observer's breath, and the constant evaporation of the drop, have also a tendency to produce counter-currents. A drop of water placed under the microscope, may be regarded as equal, in apparent magnitude, to a quart of the same fluid in a water-glass, and will be subject to the various currents that may be produced by agitation in the larger quantity; but the slightest movement which occasions a displacement of the particles, even the thousandth part of an inch will, under a high magnifying power, make them appear to perform a long voyage. Some of the animalcules discovered by Lœwenhoeck, the motions of which excited so much surprise, he informs us, never travelled farther than a hair's breadth.

"It is highly improbable that we shall ever be able to reduce mineral substances to their ultimate molecules by pulverization. Their essential qualities remain the same after pounding as before; and, could we construct microscopes that would magnify twenty thousand times in linear dimensions, we should see in pounded quartz, flint, &c. fragments and pebbles the size of walnuts, exactly resembling those of the same minerals at the foot of a mountain, and it is difficult to believe that they would gain active moving powers by simple immersion in water. Still the philosophical world is greatly indebted to Mr. Brown, for having directed the attention of naturalists to this curious subject. About ten years ago, I was informed that Mr. Bywater, an ingenious optician, now residing in Liverpool, had discovered moving animalcules in coal-ashes, pounded marble, and other mineral substances. Little interest was then excited by the supposed discovery; it required an eminent naturalist, like Mr. Brown, whose merits are well known and highly appreciated in his own country, and on the continent, to direct public attention to statements so much at variance with our preconceived notions of matter. If, contrary to my expectation, after all due caution in the observations, it should be finally established that mineral substances are composed of active molecules, what new views of nature will the discovery unfold! Beds of siliceous sand, like those on our Hampstead heath, are only awaiting a further process of trituration, to be awakened into life by the torrent that shall bear them into the ocean; and the geologist, while he contemplates the organic remains of a former world embedded in solid rocks, must regard the rocks themselves as the parents of future living beings. But who shall presume to say that we have at present discovered all the properties which the Creator has communicated to material substances? It should be borne in mind, that less than a century since, latent heat, electric and galvanic energy, and crystalline polarity were unknown as important agents in nature; and that philosophers attempted to explain the phenomena of thunder-storms, and even of

vital action, on mechanical principles. It will not be denied that many important processes take place in the mineral kingdom, which cannot now be explained by the agency of known causes, but await the discovery of other principles for their satisfactory elucidation.

"As it is probable that many persons may be desirous of entering this new field of inquiry, it will materially assist them in forming an accurate judgment of what they observe, to provide pepper water, and other vegetable or animal infusions, that they may from time to time compare the motions of the real animalcula infusoria with those of the supposed active molecules; and, if modern philosophy did not disdain to profit by the illustrations which common life frequently offers, I would recommend them to look attentively at the bubbles, or the crumbs that float on the surface of a basin of tea, and they will soon be convinced, that change of relative position is not a sufficient proof of spontaneous motion or vitality."—*Mag. of Nat. His. March*, 1829.—*Am. Jour. Aug.* 1829.

14. *On the Physiological Effects of Oxygen Gas upon the Animal System.* By S. D. Broughton, Esq.—Although it has long been known that the respiration of pure oxygen gas is destructive to life, some differences of opinion have existed with respect to the physiological conditions of the animals subjected to its influence; and also with regard to the quantity of oxygen consumed under these circumstances, compared with that consumed by the respiration of atmospheric air. With a view to elucidate some of these points, Mr. B. confined rabbits, guinea-pigs, and sparrows, in glass jars, inverted over water containing oxygen gas, obtained from black oxide of magnese by a red heat. The animals at first appeared to suffer no inconvenience from the respiration of the gas; but after some time, (generally in about an hour,) their breathing became hurried, and their circulation accelerated. This state of excitement was followed by an opposite one of debility; the respirations became feeble, and were more slowly performed; loss of sensibility and of the power of voluntary motion gradually supervened, till the only remaining visible action was a slight one of the diaphragm, occurring at distant intervals On opening the body under these circumstances, and also after the entire cessation of the movements of the diaphragm, the breast was found to be still in vigorous action; the blood in every part of the vascular system, both venous and arterial, was of a bright scarlet hue; it was remarkably thin, and rapidly coagulated; and the temperature of the body continued undiminished. If, before the diaphragm has ceased to act, the animal is removed from the vessel to the open air, it generally either recovers spontaneously, or its animation may be restored by artificially inflating the lungs with atmospheric air. Mr. B. found that the gas in which animals had thus been confined till they died, retains its power of rekindling a blown out taper, and of sustaining for a

time the life of another animal introduced into it; and he hence deduces the inference that it does not contain so great an excess of carbonic acid as the gas left when animals have perished by confinement in atmospheric air. He considers the train of symptoms induced by the respiration of pure oxygen gas as analogous to those which follow the absorption of certain poisons into the system.—*Lon. Med. Gaz. May.* 1829.—*Ibid.*

15. *Silver found in the viscera of a person who had used the Nitrate of Silver.*—Dr. WEDEMEYER, of Hanover, has published in *Rust's Repertorium*, the case of an individual who used the nitrate of silver internally, for the cure of epilepsy; the disease was removed, and the skin assumed a blue colour. The patient was afterwards affected with disease of the liver and dropsy, of which he died. On post mortem examination, all the internal viscera were found more or less stained of a blue colour, similar to that of the external surface. The plexus choroides and pancreas were submitted to chemical examination by M. Brande, and a portion of metallic silver obtained.—*Ibid.*

16. *Rhubarb Plant.*—"The plant that yields the fine rhubarb of commerce, having been long involved in obscurity, is now discovered to be the *Rheum australe;* it flowered in June last, in the collection of A. B. Lambert, Esq. at Boyton House, Wilts. The stem of the cultivated plant is from seven to ten feet high; the leaves are cordate, ample, numerous, and of a grass green colour; the flowers are smaller than in any of its congeries, and of a dark, or blood red colour; the seeds are dark red, with a highly polished surface; when bruised, they emit a powerful odour of rhubarb. It is perfectly hardy, and ripens its seed readily in this climate.

"Dr. Wallich, of the Calcutta Botanic Garden, sent over some dried specimens of the true rhubarb plant, and some seeds, from which Mr. Lambert raised a number of plants. We were informed by Mr. Anderson, of the Apothecaries Garden, at Chelsea, that he had proved the stalks of this species to be powerfully purgative, when employed in the same manner as those of the *Rheum undulatum*, in pies.

"It seems probable, that in a rich, loamy soil, we shall be able to cultivate this valuable article of the materia medica advantageously. For a fuller account, and a coloured figure of the plant, see *Sweet's British Flower Garden*, October, 1828."—*Lon. Med. and Sur. Jour. Jan.* 1829.—*Ibid.*

17. *On the Treatment of Intermittent Fevers by the Sulphate of Quinine, applied to a denuded surface of the Skin.* By Professor C. SPERANZA.—In a great number of cases it is impossible to administer certain remedies, either from the difficulty of swallowing or the vomiting they produce, the insurmountable disgust which

they inspire, or the youth of the patient; and in some instances it is probable that the liquids of the stomach modify the remedies introduced into this organ. Under these circumstances, the employment of medicines by the endermique method offers a very valuable resource. Professor Speranza has employed in this manner the sulphate of quinine, in the treatment of a considerable number of cases of intermittent fever. He relates, among others, five cases of tertian fever, which yielded immediately to the application of the sulphate of quinine, applied upon a surface deprived of the epidermis by a vesicatory. In all the patients the fever had existed for many days, without manifest local alteration, except two, which presented gastric symptoms. Without premising purgatives, a blister was applied at once, and in most of the cases, even the day of the fever: the sulphate of quinine was applied at the end of the access, or the commencement of the apyrexia. The arm was chosen to apply the blister to, as the most convenient for dressing: the skin was rubbed well with strong vinegar, to hasten the formation of the bulla produced by the blister; immediately after the epidermis was removed eight or ten grains of the sulphate of quinine incorporated in a small quantity of pomatum was placed on the denuded surface. By employing this method, the fever has most frequently ceased after the first application, without its being necessary to make a second. Not only fevers whose primitive type were tertian, but those which had originally been continued and become intermittent, were treated in this way with success. In no case did a relapse take place, which is so common after the administration of quinine internally. In some subjects in whom symptoms of organic disease necessitated the use of evacuants or topical applications after the disappearance of the fever, this last did not reappear during the course of the secondary treatment. The application of the blister during the febrile paroxysm did not produce any disorder of the urinary organs or irritation of the neck of the bladder.—*Archives Generales de Medecine, from the Annali Universali di Med. Nov. Dec.* 1828.—*Ibid.*

17. *Ergot of Rye in Chronic Uterine Discharges.*—Dr. Marshall Hall is of opinion that the ergot possesses considerable powers in controlling chronic uterine discharges. In a very severe case of menorrhagia, alternating with leucorrhœa, of four years duration, the ergot was given in doses of five grains four times a day, beginning just before the expected appearance of the catamenia, with the effect of retarding the catamenia and suppressing the leucorrhœa. In several cases of leucorrhœa he has used the ergot with decided success. The effects of the remedy are usually perceived at the end of five days; it is recommended, however, to persevere in its use for a somewhat longer period.—*Lon. Med. and Phys. Jour. May*, 1829.—*Ibid.*

19. *Taliacotian Operation performed with success.*—Since the supplemental noses which the poet tells us, "Taliacotius from the brawny part of porter's b—m first cut," many such useful appendages to the human face divine, have since been fashioned by the barber-surgeons, and surgeons not barbers, who have followed them. The following, we are told, was moulded and applied rather for use than for show.

Ann Nicholson, æt. 37, was admitted on the 16th Aug. 1827, with no part of the nose remaining, except, the right ala and the columna. All had been swept away, leaving an unsightly chasm, bounded at the sides by the nasal processes of the superior maxillary bone, and above by the os frontis. As the edges of the opening were covered, in most parts only by a red shining cuticle, which the slightest injury caused again to ulcerate, it was thought that, by giving them a soft covering from the neighboring parts, a recurrence of these ulcerations might not only be prevented, but the hideous deformity in some degree remedied.

"The case was by no means a promising one, but the patient being willing, and a consultation having sanctioned it, the operation was performed in the following manner: the right ala and columna being retained, and the edges of the chasm being pared all round, a flap, two and a half inches in length, and one and a half in breadth, having somewhat the shape of a jibsail, was taken from the left side of the forehead, the integuments over the centre having been destroyed by previous ulcerations, and now occupied by linear cicatrices. The flap was left attached at its lower and narrower part, near the inner angle of the orbit; a half turn was given to it at this point; it was then laid down and fitted to the raw edges of the opening, and retained *in situ* by four stitches. A piece of India rubber was introduced by the new-made nostril, and passed upwards so as to raise the flap in imitation of the bridge of the nose. Soft lint was laid along the raw edges, and over all a light compress. The wound of the forehead was approximated, as much as possible, by adhesive straps. The dressings were removed on the fourth day when the flap was found in perfect opposition, and united throughout most of its extent. Thereafter it was dressed daily, and in about three weeks had quite cicatrized, remedying very materially the deformity, and leaving a soft cushion over the sharp edges of the nasal processes of the superior maxillary bones. The cicatrix on the forehead became of very small dimensions—a mere line. She continued in the house till 6th November when she was discharged, in good health, and greatly amended in appearance. It should be mentioned, that the communicating part of the flap never was divided, the prominence formed by the twist serving to remedy the deformity arising from the want of the bones of the nose."—*Med. Chir. Rev. Ap.* 1829.

20. *Fungous Tumours from the Gum and Alveoli.*—Most surgeons have had opportunities of witnessing the hard, immoveable,

ced, and, for the most part, exceedingly vascular, tumours which grow from the gum, generally from that of the upper jaw. The structure of these tumours is frequently exceedingly like scirrhus, at least it is semicartilaginous, and, in one or two instances, we have found on the section a portion of sabulous matter of bone. Three cases of the kind are related by Dr. Maclachlan. In the first, the tumour occupied the situation of the two middle incisors of the lower jaw, and had originated two years previously, in consequence of breaking one of them. The disease was removed by the knife, but the profuse hæmorrhage which ensued, required the repeated application of the actual cautery, together with compression, by means of a firm roll of lint, and a bandage passed across the angles of the mouth and round the chin. The wound healed kindly, and no appearance of reproduction of the disease has taken place.

In the second instance the tumour which was firmer, more nodulated, and paler in colour, was of twenty years' standing, had already been twice removed, and grew from the upper jaw. It was extirpated by the knife, and the actual cautery afterwards applied. The third was one of a similar history and structure, apparently rather a production of the bone, than of the covering soft parts, removed by Dr. Anderson from the posterior part of the palate.

We believe it is now very generally admitted, that the mere excision of this tumour is not sufficient to ensure a cure. The actual cautery should be afterwards freely applied to the bone from which it grows, or, under particular circumstances, the saw. With all these precautions, the evil is not always completely destroyed.—*Ib.*

21. *Small-Pox.*—Dr. George Gregory presents us, in a very interesting paper in the *London Medical Gazette*, for February, 1829, with the experience of the Small-pox Hospital, during the year 1828.

One hundred and ninety-three patients were admitted with small-pox, or some of its modifications, during the year. Of these seventy-one had undergone regular vaccination, leaving a cognizable and for the most part good cicatrix. Of the remaining one hundred and twenty-two who were unprotected, fifteen had been "cut for the cow-pox ineffectually," and one hundred and seven took the disorder without having submitted to any kind of preparatory process. None were admitted subsequent to variolous inoculation. The total number of deaths was sixty-six, rather more than thirty-three per cent. Of the one hundred and twenty-two unprotected cases, sixty-three died and fifty-nine recovered, being a mortality of above fifty-one per cent. Of the seventy-one who had undergone vaccination, three only died, and sixty-eight recovered, being a mortality of only a little more than four per cent.

The few deaths that have occurred among those who suffered under small-pox after undergoing vaccination, may lead some to sup-

pose that the fatality of small-pox has diminished. Such, however, is not the fact. In 1794 the rate of mortality in the hospital was thirty-five per cent.; in 1795, thirty-one per cent.—average of the two years, thirty-one. In 1828, as we have already stated, with seventy-one admissions subsequent to vaccination, the rate of mortality was no less than thirty-three per cent. and if we consider only those who were unprotected by vaccination, fifty-one per cent.

But it is not only lessening the mortality that vaccination has shown its beneficial influence, it has also shortened the amount of suffering. The duration of each patient in the hospital shows pretty correctly the severity of the complaint, for, with few exceptions, they were all admitted on the second, or, at the farthest, on the third day of the eruption; nor were they discharged until perfectly restored to health. Thirty-seven patients having small-pox after vaccination, were discharged cured, having been in the hospital less than twelve days. Eleven of these were less than eight days in hospital. Forty-seven out of sixty-eight were discharged cured within a fortnight from admission. Eight only remained in the hospital upwards of three weeks. On comparing this with the experience of the hospital prior to the days of vaccination, it appears, that in 1794, out of two hundred and thirteen patients three only were discharged within a fortnight from the date of admission, viz. one on the fourteenth, and two on the thirteenth day; and in 1795, out of one hundred and eighty patients two only were so discharged, viz. one on the tenth and one on the twelfth day after admission. By far the larger proportion of the discharged cases remained upwards of three weeks and many several months.

Dr. Gregory endeavors to explain the fact of the average rate of mortality by small-pox not having diminished since the discovery of vaccination, by supposing that the *modified* cases have taken the place of the *natural distinct*, and he says, "it will be found that the latter, formerly so common, is now become a very rare form of the disorder, insomuch that, for the last two months, not one case bearing that character has been admitted into hospital."

"We may generalise," he adds, "one step further, and lay it down as a great general law, that there are certain constitutions which are naturally *patient* under the influence of the variolous poison. Prior to the discovery of vaccination, these must of course have been far more numerous than at present. In consequence of the disuse of inoculation, and the fewer foci of the poison now to be met with, the disease fastens itself at present chiefly upon those whose constitutions are predisposed by weakness, or some less cognizable circumstance—whose systems are exceedingly irritable under the operation of the poison, and who therefore suffer severely from it. Hence the greater number of confluent and semi-confluent cases in the practice of the present day among the unprotected part of the community; while the proportion of mild and recoverable cases is kept up by *vaccination*.

"If I have reasoned rightly on the phenomena before me, the following may be looked upon as a correct statement of the influence of vaccination upon the human body. Those persons whose constitutions are naturally patient under the influence of the variolous poison, and who, prior to the discovery of vaccination, would have had the mild or distinct kind of small-pox, are by vaccination rendered perfectly secure from the attacks of small-pox. Those again whose constitutions are naturally *irritable* under the variolous poison, and who would formerly have suffered severely from it, even by inoculation, are now, by vaccination, rendered in a great degree secure from its mortal effects. The few who do fall victims to small-pox after vaccination, are those whose constitutions are so peculiarly susceptible and irritable as to bid defiance to any kind of medical treatment, whether prior to, or during the attack."—*Amer. Jour. Med. Sci. Aug.* 1829.

22. *Mercury detected in Swaim's Panacea, by Chemical Analysis.* By R. HARE, M. D. Professor of Chemistry in the University of Philadelphia. (Communicated in a letter to Dr. HAYS.)—In February, 1827, I procured from the shop of Mr. Peter Lehman, druggist, sign of the Golden Lion, High street, a bottle of Swaim's Panacea, for the purpose of testing it for certain active metallic preparations which it was supposed to contain. Upon examination I found it to be clogged with so large a proportion of syrupy matter, that I considered it an object to get rid of this matter before prosecuting my examination. I therefore diluted about two-thirds of a bottle of the panacea with about two gallons of water, and added some yeast in order to induce fermentation.

Other subjects having absorbed my attention subsequently, the liquid remained covered up in the glass vessel into which I had introduced it, until nearly a year had elapsed. I then transferred the whole of the liquor, then much attenuated by fermentation, and the matter which had subsided from it, into a flat stoneware vessel, and placed it in my evaporating oven. From this situation the vessel was not removed, until the contents had been converted into a dry, blackish, porous crust. Of this crust the greater part was subsequently removed from the evaporating vessel, and being rolled up in paper was placed upon a shelf. Towards the close of the last summer, I happened to examine the crust attentively, when I observed on it some globules of metalic mercury. On further examination with the aid of a lens, I discovered it to be so replete with mercurial globules, that whenever any fresh portions of the crust were opened by means of a knife, more of them were observable. The crust was subsequently shown to Dr. Physick, Dr. Horner, and other intelligent friends, and it has been preserved in a bottle. I should have communicated these results to the public sooner, had I not been in hopes to have repeated the examination by another process; but not having as yet found it convenient to realize that intention,

and as you deem it of importance that the facts which I have mentioned should be published, I send this statement to you for the American Journal.—*Ibid.*

23. *Some account of the Siamese boys, lately brought to Boston.*

Dear Sir,—In compliance with your request, as well as in obedience to what I consider to be a professional duty, I undertake to give some account of the Siamese Boys, and particularly of the medium, by which they are united together.

The boys are supposed to be about 18 years old. They are of moderate stature; though not as tall as boys of that age in this country. They have the Chinese complexion and physiognomy. The forehead is more elevated and less broad than that of the Chinese, owing to malformation. They much resemble each other; yet not so much but that upon a little observation, various points of dissimilarity may be noticed.

The substance by which they are connected, is a mass two inches long at its upper edge, and about five at the lower. Its breadth from above downwards may be four inches, and its thickness in a horizontal direction two inches. Of course it is not a rounded cord, but thicker in the perpendicular, than in the horizontal direction. At its lower edge is perceived a single umbilicus, through which passed a single umbilical cord to nourish both children in the fatal state. Placing my hand on this substance, which I will denominate the cord, I was surprised to find it extremely hard. On further examination this hardness was found to exist at the upper part of the cord only, and to be prolonged into the breast of each boy. Tracing it upwards, I found it to be constituted by a prolongation of the *ensiform cartilage of the sternum*, or extremity of the breast bone. The breadth of this cartilage is an inch and a half; its thickness may be about the eighth of an inch. The cartilages proceeding from each sternum meet at an angle, and then seem to be connected by ligament, so as to form a joint. This joint has a motion upwards and downwards, and also a lateral motion, the latter operating in such way, that when the boys turn in either direction, the edges of the cartilage are found to open and shut. The lower face of this cartilage is concave, and under it is felt a rounded cord, which may be remains of the umbilical cord. Besides this there is nothing remarkable felt in the connecting substance. I could distinguish no pulsating vessel.

The whole of this cord is covered by the skin. It is remarkably strong, and has no great sensibility, for they allow themselves to be pulled by a rope fastened to it, without exhibiting uneasiness. On shipboard, one of them sometimes climbed on the capstan of the vessel, the other following as well as he could, without complaining.

When I first visited the boys, I expected to see them pull on this cord in different directions, as their attention was attracted by differ-

ent objects. I soon perceived that this did not happen. The slightest impulse of one to move in any direction, is immediately followed by the other; so that they would appear to be influenced by the same wish. The harmony in their movements is not the result of a volition, excited at the same moment. It is a habit, formed by necessity. At an early period of life it is probable they sometime differed. At present this is so rarely the case, that the gentlemen who brought them, has noticed only a single instance. Having been accustomed to use the cold bath, one of them wished it, when the weather was cool; to which the other objected. They were soon reconciled by the interference of the commander of the ship. They never hold a consultation as to their movements. In truth, I have never seen them speak to each other, they converse constantly with a Siamese lad, who is their companion. They always face in one direction; standing nearly side by side, and are not able, without inconvenience, to face in the opposite direction, so that one is always at the right, the other at the left. Although not placed exactly in a parallel line, they are able to run and leap with surprising activity. On one occasion, a gentleman, in sport, pursued them round the ship, when they came suddenly to the hatchway, which had been inadvertently left open. The least check would have thrown them down the hatchway, and probably killed one or both; but they leapt over it without difficuly.

They are quite cheerful; appear intelligent; attending to whatever is presented to them, and readily acknowledging any civility. As a proof of their intelligence, it is stated, that in a few days, they learned to play at drafts well enough to become antagonists of those who had long been versed in the game.

The connexion between these boys might present an opportunity for some interesting observations in regard to physiology and pathology. There is, no doubt, a net work of blood vessels and some minute nerves passing from one to the other. How far these parts are capable of transmitting the action of medicines and of diseases, and especially of what particular medicines and diseases, are points well worthy of investigation. Captain Coffin informed me they had never taken medicine since they had been under his care. Once they were ill from eating too heartily, but were relieved by the efforts of nature. He thinks that any indisposition of one extends to the other; that they are inclined to sleep at the same time; eat about the same quantity, and perform other acts with great similarity. Both he and Mr. Hunter, the gentleman who united with him in bringing them here, are of opinion, that touching one of them when they are asleep, awakens both.

The pulsations of the heart are exactly alike in both boys. I counted seventy-three pulsations in a minute, while they were sitting; counting first in one boy, then in the other. I then placed my fingers on an arm of each boy, and found the pulsations take place exactly together. One of them stooping suddenly to look at my

watch, his pulse became much quicker than that of the other; but after he had returned to his former posture, in about a quarter of a minute, his pulse was precisely like that of the other boy. This happened repeatedly. Their respiration are of consequence, exactly simultaneous.

This harmony of action in primary functions shows a reciprocal influence, which may lead to curious observations and important deductions. Whether it will be in my power to obtain any further information in regard to them, is uncertain. If not, some one else can better accomplish the task.

Let me add that there is nothing unpleasant in the aspect of these boys. On the contrary, they must be viewed as presenting one of the most interesting objects of natural history, which have ever been known to scientific men.

You are at liberty to employ the above statement in such way as you think likely to be useful.

I have the honor to be yours, &c.

JOHN C. WARREN.

Wm. Sturgis, Esq. *Ed. Bos. Dai. Ad.*

24. *Extract from another account of the same.*—The precise effect of this physical union, on the intellectual faculties, the moral sentiments, and animal propensities of these boys,—its influence on the functions of the different organs, and how far it would communicate or modify the effects of the morbid or medicinal agents, are subjects on which we shall not enter. No opportunity has yet presented of observing the influence which disease or medicine in one, would exert on the other; but circumstances do not appear to justify the least suspicion of any mental individuality. Whispering in the ear of one, conveyed no sense of sound to the other. Volatile salts applied to the nostrils of one, produced in the other only a curiosity to try the same experiment on himself. Pinching the arm of one, was attended by no sensation in the other. Being desirous of ascertaining if there was *any* point where both felt, we made an impression with the point of a pin in the exact vertical centre of their connecting link; both said it hurt them. We then made other impressions, extending them very gradually further from this point; the result was, that within the distance of three-fourths of an inch from the centre toward each boy, sensation was communicated to both by a single prick; beyond this it was excited in one only, the other perceiving it in no degree whatever. This experiment was remarkably satisfactory, and we apprehend that farther than here exhibited, the two youths must be considered, whilst in a state of health, as free and independent agents, and the functions of all the other organs as unconnected as those of their brains.

Twins generally resemble each other in intellect and disposition, as well as in person, and this is particularly the case with the boys in question. When to this natural resemblance we add the habit

they have contracted of acting simultaneously and in concert, we shall be less surprised than we might at first be, at the facility with which their various movements are performed, and the quickness with which one responds to the inclinations of the other.

In the course of their voyage, they will not only run, we are told, and leap with great agility and without interfering with each other, but climb to the mast-head as fast as any sailor on board the ship. They are seldom observed to converse with each other, and the concert with which they act seems to be almost instinctive. In playing the game of drafts, e. g., which they learnt with great ease, being a people naturally fond of games and gambling, they were observed to decide on their moves almost instantaneously, and to make them with a quickness and air of decision sufficiently characteristick of all their movements. In the course of the game, sometimes the one and sometimes the other would make the move; they appeared to have the same plans, and always acquiesced in the moves of each other. Yet they sometimes *play against each other*; but so strong is their habit of co-acting, that such games go on with less freedom than when opposing a third person. Their alvine evacuations generally occur at the same time; their appetites and tastes are all very much alike; and they appear not only contented but happy, and extremely attached to each other. Capt. Coffin was informed by their mother, that she had borne seventeen children. Once she had three at a birth, and never less than two; though none of her other children were in any way deformed.

The question naturally arises in the mind of every observer, could not this connecting substance be divided without injury to the boys? —We do not pretend to solve this problem, which after all can only be decided by the experiment; but we hesitate not to say that, after several very accurate examinations, our impressions are that such a division would be a detriment only to the very respectable and obliging gentleman who offers them for exhibition. The anatomical structure of this bond of union is apparently simple, and we regard the fact that children so united should have been ushered into the world with safety to themselves and their mother, that they have escaped the ills and early fatality which usually attend such prodigies, that they should have grown up to the age of 18 years in the uniform exercise of mutual good will and a spirit of mutual accommodation, and that they should be so perfectly contented with their lot, and so happy in all the various unpleasant circumstances in which they are placed, as far more remarkable than that such a deformity should have existed. Instances of fœtuses united much more closly than are these boys, are by no means rare in the books or cabinets of anatomists. The mode of union is very various, being sometimes at the hips, backs or sides; several cases are related by Parey and Tulpius, in which the connection was at the abdomen. In the Philosophical Transactions is an account of two children thus united, born near Manchester, Eng. in 1752. 1748 Dr.

Parsons comunicated to the Royal Society an account of a still birth not very unlike the boys now exhibited. The fœtuses were united from the umbilicus to the upper part of the sternum, and the single chord by which they were nourished, entered the connecting medium at a central point on its lower surface. Dr. Cotton Mather communicated to a learned friend in England, a similar case of which he was eye-witness, and which occurred in this city in 1713; and a double fœtus, born in this county at a much later period, is now preserved and deposited, if we mistake not, in the anatomical cabinet of a neighbouring medical institution.

Most monsters have been still-born, and of the few who have been living, a very small proportion have survived many days. The most remarkable and as far as our memory goes, the only case on record of such monsters acquiring the adult age, occurred in Hungary more than a century ago. Two females Judith and Helen, born in Szona in 1701, were united at the lower part of the back. They had but one urethra and one passage for the fæcal evacuations. Their bodies, abating the deformed part alluded to, were well shaped and their faces beautiful. They were intelligent, and like the boys of Siam, not only contented, but in the language of their father, "both brisk and merry." Like them, also, these girls "had not their feeling common any where but in the place of their conjunction." When one stooped she lifted the other on her back, and whe one went forward the other was drawn backward. One would sometimes sleep whilst the other was awake, and though tenderly attached, their inclinations were not always the same. These Hungarian sisters were well educated and well bred; they could speak four different languages, and sing very prettily. They lived to the age of twenty-two years, during which time they were exhibited in different parts of Europe, and both died together in 1723.—*Bos. Med. Intel.*

25. *A case of twins united by the Umbilicus.* By Joshua Martin, M. D. of Xenia, Ohio.—On Monday the 31st of August 1829, I witnessed a most extraordinary *lusus naturæ* of which I am induced to publish a brief notice.

The wife of a gentleman of this vicinity was delivered on Saturday the 29th of August, at the close of the eighth month of utero-gestation, of two living children, of ordinary size, who were attached together by a round substance, of about three inches diameter, commencing at the ensiforme cartilage, or lower end of the breast bone, and extending down the abdomen.

The superior part of the attachment was hard and cartilaginous, formed by the ensiforme cartilage of the one extending across, and uniting with that of the other; below it was soft and gave the sensation to the touch, of a membranous sack, containing part of the abdominal viscera.

At the inferior part of the connecting medium, the skin was wanting; and at that point arose one umbilical chord which served both children.

Anastamosis, or union of the superficial veins of the two children could be distinctly perceived. They were both females and in every respect natural, except that one had two thumbs on the left hand. I saw them about forty-eight hours after their birth, one of them had then been dead twelve hours, and the other died in a few hours afterwards.—*Far. Rec. and Zenia Gaz.*

26. *General Phlebitis—or Purulent Concretions in Veins.*—The following case will prove a very valuable addition to the mass of facts brought forward by Mr. Arnott on phlebitis and its consequences.

Case. F. Gibeau, aged 28 years, was delivered of twins on the 8th July, 1826. On the 9th and 10th she went on well, though the lochia were scanty. On the 11th her breasts swelled and became painful, the pain extending to the axillæ, and along the left side of the chest, with rigors, fevers, some delirium, diarrhœa, and vomiting. Pains now seized various other articulations, and she was brought to the hospital on the 14th July. Her countenance was now pallid, features shrunk, tongue coated, dry, and red; thirst, abdomen tense and tender on pressure, a large umbilical hernia easily reducible, diarrhœa, vomiting, quick pulse, cough, oppression, knee-joints red, swelled, and painful—œdema of the lower extremties, which were tense, shining, white, elastic, and did not leave pits on pressure. The right mamma was swelled and shining. The diagnosis was—"active œdema of puerperal women"—"*œdeme actif des nouvelles accouchees:*" in other words, PHLEGMATIA DOLENS. Twenty ounces of blood were taken from the arm—lowest scale of regimen—emolient cataplasms to the breast and abdomen. The venesection was repeated the next two days, the blood being much inflamed. *The left arm became the seat of the great pain*, 19th July. There are two gangrenous spots on the right mamma—a similar appearance was presented on the labia pudendi. The left arm showed the same kind of œdematous swelling as the lower extremities. The phlegmasia, which was thus extended to so many organs and parts, was now treated by the tartrite of antimony, in doses of six grains per diem. This plan was pursued during six days—from the 20th to the 26th July, in the course of which time, the diarrhœa ceased; but the œdematous swellings remained. The diarrhœa returned on the 30th July, and continued till the patient's death, which took place on the 15th of August.

Dissection. We must pass over a great many minute particulars, in order to preserve the more important parts of the dissection. There were some points of hepatization in the lungs, but no purulent depots. The pharynx and œsophagus were completely lined with an exudation resembling soft morter, forming a tube that reached to the cardia, and there terminated. The mucous membrane of

the œsophagus itself was pale when denuded. The peritoneum was healthy, as was the mucous membrane of the stomach and intestines; except some small portions of the colon. The uterus was the size of a fist, and its cavity filled with a sanguineo-purulent fluid. The parieties of the organ were livid—and, towards the fundus, in a state of molescence. There was a vast depot of suppuration about the left shoulder joint—but the other articulations, so swelled and inflamed during life, were now collapsed and colourless. The principal veins of the left arm were filled with a white tubular concretion, non-aderent to the internal surfaces of the vessels. The tubular concretion itself was filled with pus exactly similar to that found around the joint. The internal coats of the vein were remarkably pale. The iliac veins contained polypus concretions not at all analogous to those above described. The hypogastric and femoral veins, however, presented tubuler concretions filled with pus, down even to the ankle. Finally, the pulmonary *arteries* presented the same appearances as those described in the veins.

Remarks. When we consider the state of the internal surfaces of the vessels in which these concretions filled with pus, were found,—pale and non-adherent to the said concretions—we must conclude with the author that the phenomena cannot be legitimately traced to phlebitis. "I am rather disposed," says he, "to believe that this concretion was formed at the expense of the blood itself—and that it was the consequence of a mixture of pus, that is, an inorganic fluid, with one endowed with life." In whatever way the facts may be viewed, they tend to support the doctrine of the humoral pathology, so long and so unjustly ridiculed by sciolists and visionary solidists.—*Revue Medicale.—Med. Chir. Rev.*

27. *Varieties of Hydrocele—Modifications of the usual operations.*—The operation of injection for hydrocele is certainly, in the great majority of cases, extremely easy and safe in its performance, as well as successful in its results. Cases, however, occasionally occur, where untoward symptoms arise to thwart the objects of the surgeon, or even endanger the patient's existence. Hæmorrhage, either externally, or into the tunica vaginalis, is not very unfrequent, and tetanus has, in several instances, followed the operation. M. Dupuytren, who, from his situation of "chef des travaux anatomiques," has dissected a considerable number of hydroceles, believes that these accidents depend on a variation in the anatomical relations of the hydrocele, a variation of which the surgeon should be aware. The following case is adduced in illustration of the Baron's remarks:

Case. Auguste * * *, ætatis 13, of delicate constitution, was admitted into the Hotel Dieu, with a hydrocele of six months standing in the left side. The whole circumference of the hydrocele might be grasped without pain, but the instant the upper part was touched, the patient experienced the sensation of the testicle having

been meddled with. On using the lighted taper, the testicle was found to be lodged in this part; and, "from the extremity of one of its diameters," the cord passed in front of the scrotum to gain the inguinal canal. In short, the testicle occupied the summit of the hydrocele, and the spermatic cord was situated along its anterior part. Under these circumstances, M. Dupuytren performed the operation at the middle and external part of the scrotum, in order to avoid the lesion of the organs alluded to above.

M. Dupuytren believes that, had the usual operation been resorted to here, and the testicle and cord been wounded, as they must, it is not improbable that serious mischief might have followed. At all events, he recommends, and we think very justly, that prior to thrusting in the trocar, the position of the testicle and spermatic cord should be carefully ascertained. *Ibid.*

28. *On the Reduction of Herniæ.* By M. Dupuytren.—The means of reducing hernia are various, and more or less efficient. The application on the hand, or taxis, is the most methodic and advantageous; it is modified according to the kind of hernia, its size, and other circumstances. Among the empirical methods adopted for the same purpose, there is one which approaches to this. The patient being laid upon his back, the feet are raised as high as possible, leaving the head and shoulders upon the ground; the weight of the viscera in the abdomen acts upon the portion of bowel in the hernia, dragging it towards the interior, sometimes effecting the reduction. Here there is a mechanical action, not from without, inwards, as in the taxis, but in an opposite direction. Various topical applications are made to strangulated herniæ; some of these, as cold water, &c. are intended to diminish the volume of the parts in the sac. The action of cold produces several effects; it increases the tone of muscular parts, often, indeed, giving rise to sudden contractions, capable of overcoming the obstacle which has been opposed to the passage of the intestinal contents; so that strangulated herniæ are sometimes speedily reduced by the affusion of very cold water. Ice, applied with perseverance, condenses the liquids and gas, and thus also facilitates their return into the abdomen. Other local applications appear intended to act upon the secretion of the mucous membrane of the part; such as cataplasms of senna, gratiola, &c. These are asserted to have good effects in the cases of elderly persons, in whom it is well known that the slowness of the peristaltic motion more frequently occasions overloading than actual strangulation; a circumstance which must be kept in mind, that we may not trust too much to these measures where the patient is young, and the case one of genuine incarceration. As experience has demonstrated that the manner in which purgatives act is by facilitating the expulsion of the contents of the herniæ, it may be asked why more active substances are not employed; for example, the croton oil?

The nausea and vomiting so frequently present in such cases, does not always contra-indicate the use of purgatives, as they sometimes succeed when more methodical treatment has failed. With regard to enemata, they ought never to be omitted unless there be evident symptoms of inflammation.

Some local applications are intended to produce relaxation at the point of strangulation; thus the extract of belladonna has recently appeared to produce good effects in the hands of M. St. Amand.

The rapid sinking of the patient frequently produces the relaxation favorable to the reduction of the herniæ. This is effected by means of copious general bleeding; the application of leeches to the tumour; and long-continued immersion in a warm bath; means which in general are not employed with sufficient energy. These observations show, that the operation is not the only resource in such cases; but it is a very important point that the operation be not delayed after its necessity has become obvious. A consideration of all the circumstances can alone lead to a satisfactory conclusion. The following case will show that at the Hotel Dieu other means are tried before operating:

"A woman, aged fifty, had laboured under crural hermit of the right side for more than ten years. It frequently became obstructed, but repose, the horizontal posture, and the taxis, had always sufficed to restore it. On the 24th of February, after some efforts to carry a load, the tumour suddenly became the size of a small egg, and symptoms of strangulation manifested themselves with violence. The usual methods to produce reduction were adopted without avail. Next day she was brought to the hospital, when she was bled from the arm, the tumour covered with leeches, and she was put into a warm bath, where she remained nearly two hours. At the end of this time faintness came on, when the 'interne' took the opportunity of applying the taxis, by which means he entirely reduced the herniæ.

M. Dupuytren stated, that at the Hotel Dieu they succeeded in reducing only one-third of the herniæ brought to them, while in civil life at least two-thirds were reduced. Among the causes of this difference, the principal is, that those cases in which reduction has already been attempted without success are generally sent to the hospital. In the better ranks of life the causes of strangulation are much less frequent; the patients much more ready to call in assistance. If we are in haste to operate on such individuals, some of those who die might possibly be saved; but at the same time we run the risk of practising an operation which is not called for. Besides, there is never more than twelve hours between each visit; and it is generally in this interval that reduction takes place. Prudence, therefore, requires that we ought not to be in too great haste; and experience proves that gangrene of the intestine neither comes on so easily nor so soon as is generally said. We are now less imposed upon by the brown colour which the organ assumes in conse-

quence of the constriction; and knuckles of intestine are now replaced in the abdomen, the appearance of which would formerly have been regarded as indicating the necessity of establishing an artificial anus. It is necessary, then, to multiply the means of reduction; to persevere as long as possible in their employment, and only to despair of their success when the continuance of the local mischief, and the increase of the general symptoms, give rise to well-grounded apprehensions.—*Clinical Lectures of M. Dupuytren, La Clinique Ibid.*

28. *Supposed Artificial Diamonds.*—M. Thenard gave an account of the experiments made by himself, MM. Dumas and Cagniard de la Tour, to verify the trials by which the latter thought he had obtained the power of crystalizing carbon, and forming diamond. An accurate analysis of these crystals, which had no colour, proved however, that they were only silicates, and not artificial diamond.—*Annales de Chimie*, 1829.—*Amer. Jour. of the Med. Sciences.*

II. Analytical.

30. *Wounds of the Heart.* In the number of this Journal for Oct. 1828, was published by Dr. Randall of Tennessee, the history of a case of gunshot wound of the lungs and heart. The patient lived 67 days from the accident and when examined after death the heart presented the following phenomena:

"It was, says Dr. R. considerably enlarged, and irregular on its surface, at the places where it adhered to the pericardium. In cutting though its parietes, we found some parts of them nearly cartilaginous, *and on opening the right ventricle, we were astonished to find three shot lying loose in its cavity.* This ventricle was greatly enlarged, and lined with a thick coat, from which there projected numerous papillæ of a dun colour, giving it the appearance of the upper surface of the tongue of an ox. *On opening the right auricle, we found two shot in its cavity, also lying detached.* The internal surface of the auricle did not appear to have sustained much injury from their presence. The shot had entered the heart about one third of the way from its base to its apex, the wounds made by them were at a little distance from each other; they had all cicatrized, but the spots were plainly to be seen.

In the last number of the American Journal of the Medical Sciences, (Aug. 1829,) Professor Coxe, one of its most learned contributors, has devoted an article to the facts quo-

ted from Dr. Randall's paper, in which he admits the existence of the shot in the cavities of the heart, as reported by the author of the case, but expresses his opinion that they did not penetrate the heart when the boy was wounded, but made their way thither after death. The professor whose bibliothecal researches are, for America at least, profound and extensive, assures us, that the annals of medicine furnish abundant evidence that 'wounds of the heart are *invariably fatal* when penetrating its cavities;' and he cannot persuade himself that the case reported by Dr. R. constitutes an exception.

In support of this position he cites cases from a considerable number of writers, chiefly the older of the moderns, and expresses the belief that many others might be collected. As to the eschars found upon the external surface of the heart, the Professor believes them to have been produced by shot which did not penetrate its cavities. How then did those foreign bodies arrive at such an extraordinary goal? The following is his theory of this difficult phenomenon:—

May I ask, whether, in a wound, or rather five wounds penetrating the heart, little or no hæmorrhage would be likely to take place, either at the instant, or at some period before the adhesive process was completed; is it likely, in a wound made by the "whole charge" of shot, the greater part of which seem clustered in the lungs, that in the course of a week the wound would be healing, and in three or four weeks be completely cicatrized, while such perforations existed in the ever moving viscus? Is it likely that three shot would continue permanently during sixty-seven days in the right ventricle, and two in the auricle? and how indeed, from the location of the wounds, could the latter have gotten into the auricle? Are we to suppose, that during sixty-seven days, these five shot remained unmoved, exposed to the full torrent of the circulating stream? Would this rapid motion not rather have impelled them into the pulmonary artery; and driven them to a part whose calibre they could not pass; and when of course dissection might have traced them? In opposition to these difficulties, where is the dilemma, if we suppose, that, as the lungs were loaded in various parts with shot, the deranged state of those vascular parts, inducing suppuration, &c. should, (although the external wound might heal;) nevertheless, after that period, bring on hectic fever and other symptoms; and that some of the vessels, eroded or absorbed by the pressure of a leaden shot, might at length permit some of the cluster to fall into its cavity;

and at the moment of death, by mere gravitation, find their way into the cavities of the heart, in which they were seen and detected? Had the idea suggested itself, it is not impossible, that even other shot might have been found, that might have fallen into the vena cava, and only been arrested by some distant valve!

Our chief object was to make known to the readers of this journal, the views of Professor Coxe, but we hope to be excused for recording the reflections which a perusal of them has excited.

1. Most of the cases which he has cited, were wounds by cutting instruments, and for an obvious physiological reason, these would much more certainly prove fatal than those made by shot.

2. No kind of wound would be so little likely to produce hæmorrhage from the cavities of the heart, as those made by shot when they were nearly spent, as must have been the case in this instance or they would have passed into the opposite side of the heart. The apertures which they would produce, in perforating a dense muscle, would be very small; and the extravasation which would instantly follow from the wounded vessels into the contused parts, would greatly contribute to close up the openings; which, moreover, on the known laws that govern the course of projectiles, would be more or less, sinuous.

3. The professor admits that shot had reached the outside of the heart and left eschars. But what became of these? It does not appear, that they were either buried in the substance of the heart, or fell back into the cavity of the pericardium.

4. If the shot penetrated the cavities of the organ, and the patient did not die of hæmorrhage, he would (if no other injury had been sustained) have lived, until their irritation on the new surfaces had raised a fatal inflammation.—Such an inflammation, if we may credit the report of the morbid appearances they did excite.

5. At first view we might suppose, that the cavities of the heart would have thrown the shot into the great vessels; but where is the evidence that they possess any such power?

The mode of contraction that would throw out the blood, might not eject small globular bodies of six times its specific gravity. On the contrary, it seems to us, that these bodies would most probably remain confined in their habitation, in perpetual contact with the inferior part of the parieties, from which, especially in the ventricle, it would certainly be difficult to dislodge them.

6. Professor Coxe asks how the shot could have gotten into the auricle? It certainly is not difficult to understand, that if they all penetrated the ventricle, they might have passed at the moment when it was receiving blood from the auricle, into that cavity, without wounding the ariculo-ventricular valves.

7. To the professor's explanation, there seem to us to be insuperable objections. If the shot came into the cavities of the heart after death, how can we account for the marks of inflammation which their surfaces exhibited? But what analogy have we for the erosion of arteries, in such manner as to admit the introduction of shot? Why did not aneurisms form when their parieties were partly ulcerated through, and why did not hæmorrhage take place at the moment when it was completed? The pulmonary artery and its ramifications receive and transmit blood to the last moment of existence, and if apertures were made into them large enough to admit of the introduction of shot by their own gravity, hæmorrhage *must* occur. Moreover, until the arteries had emptied themselves, the shot could not have passed along them to the heart; but they push forward their contents, after the heart has ceased to beat, by contracting upon them and it was not until after their elasticity had, finally, expanded them, to the size in which they appear in absolute death, that the shot could have begun to traverse them. But what, at that period could have moved those bodies to leave their resting places, *ascend* a branch of the pulmonary artery, and, after descending into the ventricle of the heart, mount upwards into its auricle? Finally, it appears from the account given, that neither abscess nor ulcer existed in the lungs.

Prosecuting the application of his theory, Prof. C. suggests that if a proper examination had been made, it might have been found, that other shot had fallen into the vena cava (ascendens) and only been arrested by some distant valve! But how an ulcer in the lungs or an absorption of the pulmonary tissue could have extended to that vessel, the Professor has not undertaken to instruct us; and till then we must suppose, that he refers to the *pulmonary* veins instead of the *vena cava*. He has even not informed us, whether the shot which made their way to the right chambers of the heart, took the route of the pulmonary artery or one of the venæ cavæ.

In conclusion, Prof. C. referring to his own explanation, remarks:—

By such, or some process of a similar description, can I alone suppose that we can *plausibly* explain the various circumstances of the case! The *actual* penetration of the cavities of the heart, is altogether problematical; and if the shot did really find their way in the manner affirmed by the gentlemen who relate the case; I can only say, that it is an anomaly as regards the wounds of the heart; and being in total opposition to *every* hitherto recorded fact, it must stand as an insulated one in the annals of medicine!

On this paragraph we would observe, that no just objection can be raised against the *facts* stated by Dr. R. from their being "insulated in the annals of medicine." It is an assumptoin to say, that all which may happen to the animal economy, has already happened; or that we can determine *a priori* on its conservative or recuperative resources. These are only to be known by observation and experiment, for the successful prosecution of which *incredulity* is not the only qualification required.

---

21. *Respiration of Children in Reversed Presentation.* By Professor Bigelow. Every obstetrical practitioner has experienced the anxieties excited in the closing stages of reversed presentations, by the perception that the fœtus is about to perish from the unavoidable compression of the funis after the body has been delivered. We have, ourselves, repeatedly felt this embarrassment, and more than once seen

the young stranger perish, at the moment of his transition from a parafitic to an independent existence. Hence we have always regarded foot presentations and artificial footling cases, with great disrelish. Our practice in these critical circumstances, has been to introduce two or more fingers of the left hand into the posterior part of the os externum, with the back turned to the perinæum, and if possible carry them high enough to traverse the mouth of the child, when by forcibly pushing off the vagina, we may frequently open and maintain a passage to the ærial orifices, and establish the function of respiration. For obvious reasons, the umbilical cord should be brought and kept between the hand and the face of the fœtus. Our object, however, is not to detail the results of our own experience, but those of the learned and respectable professor, whose name we have quoted. It will be seen that they embrace the method which we have pursued, with other and more complicated measures. The following extended extract from his paper, in the August No. (1829) of the American Journal, sets forth all that he proposes:

The method to be pursued in conveying air to the mouth, depends upon the situation of the head. If the chin has descended low in the pelvis, so that the mouth rests upon the perinæum or lower part of the sacrum, and can be readily reached by the fingers, the hand of the operator alone is sufficient to give the assistance required. But if the mouth is situated so high in the pelvis as to be reached with difficulty, or if, from the large relative size of the head, there is much compression, the assistance of a tube may be of use. The mode of proceeding which I have found successful in various instances is as follows: as soon as the body and arms are extracted, supposing the face towards the sacrum, an assistant supports the body, carrying it towards the pubis; or the reverse, should the position of the face be to the pubis. The accoucheur should then introduce the hand to which the face looks, till the middle fingers rest upon the mouth of the child. The hand is then to be raised from the throat of the child, making the ends of the fingers a fulcrum, and pushing the perinæum backwards. The air will thus pass upwards as far as the chin of the child. The middle fingers are now to be separated about half an inch from each other, and thus a complete passage will be formed between them, by which the air will reach the mouth of the child. If the child be in a healthy state up to this period, it will immediately breathe and cry,

and the delivery of the head may be safely postponed until the natural pains recur. If, from any degree of asphyxia, the child does not immediately breathe, it may often be made to do so by dashing cold water upon the body, or by other stimulating processes. It has even appeared to me practicable to inflate the lungs, in some cases, through an elastic catheter. When the mouth is so high in the pelvis as to be reached with difficulty, or when the compression is so great as to obliterate the cavity between the fingers, a flat tube will be found useful, made of metal, of spiral wire covered with leather, or of elastic gum, and having its largest diameter about half an inch. If the tube be of metal, or of any incompressible material, it should be withdrawn during a pain, to prevent contusion of the soft parts, and immediately replaced, if the pain subsides without expelling the head. Such a tube may be considered as a prolongation of the trachea, and is fully sufficient to sustain life by respiration for a considerable time. The tube must be guarded and directed by keeping it between the fingers of the inserted hand.—p. 286.

---

31. *Aneurism. Tying the artery on the distal side.* Mr. WARDROP. The Medico-Chirurgical Review, just received, has brought us London professional news down to July. In looking through this late number, we do not discover a great deal of deep or immediate interest. The third article is on a work, by Mr. James Wardrop Surgeon, entitled 'Aneurism, and its cure by a New Operation.' We shall give a few extracts from the review. The operation, however, although denominated new, has been practised before, but not with success; and Mr. W. is fairly entitled to the praise of having shown its utility, as far at least as several cases can go.

In the first he operated himself under the most unfavorable circumstances, the patient being 75 years of age, and applied the ligature on the distal side of an aneurism of the carotid artery with perfect success. An account of three similar cases follows, the first two of which were not so successful, but the last, which was performed by Dr. Bush, is said to have been completely successful. Having thus detailed the particulars of these operations, the author proceeds to make an application of his principles to the cure of aneurism of the arteria innominata. In doing so he observes, that the process employed by nature in the spontaneous cure is precisely analogous to that which takes place in the cure by the Hunterian op-

eration; for in both cases the coagulation of the blood proceeds from the circumference of the sac towards the centre. From this fact Mr. Wardrop was led to infer that "in cases of aneurism of the arteria innominata, the progress of the disease might be arrested by tying its two great branches, the carotid and subclavian; and although a certain portion of blood would still continue to pass along the innominata to those branches of the subclavian on the cardiac side of ligature, the ligature being necessarily placed on the subclavian artery after it emerges from between the scaleni muscles, yet such would be the diminution of the impetus of the blood in the sac, that the process of thickening of its parieties would not only go on, and thus its future increase be prevented, but even a permanent obliteration of the aneurismal cavity would be accomplished. This view is supported by the fact, that, in all cases of aneurism of any growth, we invariably find laminæ of coagula adhering to the internal surface of the sac. It is the process which nature adopts to cure the disease, by gradually filling the sac with successive deposits, until at last the cavity be so completely plugged up as no longer to admit a column of blood to pass through it. Now if we can diminish the column of blood passing through the sac of an aneurism, we most powerfully assist Nature in her efforts to consolidate the contents; for, according as the blood admitted through the sac is lessened in quantity, the greater will be the disposition in the blood contained in it to coagulate. To this some have objected that the collateral branches enlarge so much, that the usual quantity of fluid circulates through the sac. Here, again, past observation has been deficient; for, as Mr. Wardrop observes, though the collateral vessels do enlarge most considerably, immediately after the application of the ligature, yet in a very short time they again diminish in volume, though not quite to their original diameters.

These views, founded on the pathology of the disease, and the observation of the phenomena of the spontaneous cure, emboldened the author to put his plan into execution in a well-marked case of aneurism of the arteria innominata. In this case the pulsation of the right carotid, with its several branches, was not perceptible, so that its obliteration was presumed. A ligature was therefore applied to the right subclavian, and though many untoward derangements of general health retarded its progress, the cure is said to be complete; for, at the last report, the only appreciable remains of the aneurismal tumour, which originally was perceptible at the root of the neck, was an unnatural feeling of hardness above the clavicle. In this case, nature had considerably advanced in the spontaneous cure by the obliteration of the canal of the carotid, so that art was only required to assist by obliterating that of the subclavian. In those instances, however, of aneurism of the arteria innominata, where both the carotid and subclavian are quite pervious, Mr. Wardop advises the application of the ligature to the carotid artery first, and to the subclavion at a subsequent period. His view on this subject

seems to have been attended with a more favorable result than could possibly have been anticipated, for, in a case of aneurism of the arteria innominata, lately operated on by Mr. Evans, of Belper in Derbyshire, the ligature of the carotid was alone sufficient for the cure, the subclavian having become *spontaneously* obliterated eight or ten days after the operation.—pp. 47–48.

Our readers will recollect the thrilling interest, inspired a few years ago, by the account of Professor Mott's operation on the arteria innominata, in a case of aneurism. The patient lived so long afterwards, as to demonstrate that the operation is not necessarily fatal, at least in the hands of that most adroit and intrepid surgeon; but there is a fearfulness, in the very idea of opening the chest, and placing a ligature around one of its great vessels, in the neighbourhood of the heart, that must and ought for ever deter all ordinary surgeons from attempting it. We cannot, therefore, but regard the results of Mr. Wardrop's experiments with the greatest satisfaction; and take pleasure in making them more extensively known, in a region of country, which has many practitioners who could successfully tie up the carotid and subclavian arteries, but would shrink from the touch of their common trunk.

---

32. *Oil of Turpentine in Incarcerated Herniæ.* Prof. Sewall, of the Federal city school, has published in the Am. Journal, the notes of a case of incarcerated scrotal hernia, which was cured by oil of turpentine taken internally. The following is his account of what took place under its administration:

I first attempted a reduction of the bowel by taxis, but as my exertions were unavailing, I bled him largely and then renewed my exertions, but without success. I then gave him two ounces of the spirit of turpentine, and instructed my pupils, who remained with him, to repeat the same dose every hour, till eight ounces were taken, or some sensible effect produced. Soon after I left him, a profuse sweat took place, and he fell into a tranquil sleep. In about two hours the herniæl tumour became soft and yielding and spotaneously

retired from the scrotum. On repeating my visit in the middle of the day, I found he had taken about six ounces of the turpentine, and without experiencing any inconvenience from it. He was still sleeping, and entirely relieved. The next day he was at work in the brick-yard, and with no other complaint than that of a slight looseness of the bowels, and a scalding sensation in the rectum in passing his stools. No strangury was produced.—p. 301.

The professor acknowledges himself indebted for the practice to Dr. McWilliams, who had used the same medicine successfully in two cases.

---

33. *Dengue.* In the same Journal, Dr. Daniell, of Savannah, has published the results of his observations on this singular and novel malady, of which we have already taken an extended notice. Desirous of putting our readers in possession of all the important facts touching this strange epidemic, we shall present them with such paragraphs of the Doctor's short paper, as will present his pathologic views and the practice which he pursued.

The Dengue is certainly an exanthematic fever. At an early period, an eruption invariably appears in some part of the body, unless prevented by active purging, bleeding, or some other injudicious prescription. Upon fixing and maintaining this eruption on the surface, and allowing it gradually to pass off by perspiration, depends the radical cure of the disease.

As just stated, my great object in treating Dengue was to fix the disease upon the surface. To this end, upon visiting a patient laboring under it, and especially in the first stages of the disease, I directed a mustard plaster to be placed on the abdomen to inflame the skin. If the eruption had previously existed, this increased it, or in its absence produced it. In some cases additional plasters of the same article were placed on the extremities. Whenever the eruptions were fully established on the surface, the pains of the different parts of the frame were removed.

If circumstances indicated their use, castor oil, or some mild laxative was given, to obviate or remove costiveness.

The eruptions having been fixed on the surface, serpentaria, and bark or quinine were given, until the fever subsided, which was commonly from two to four or five days. After that, the serpentaria was given alone for six or eight days, by which a constant and gentle

moisture was maintained on the surface. During this latter period, animal food, porter, or wine, were given the patient in small quantities. Under the above briefly recited treatment, the eruptions gradually passed off, (usually before the fever,) and the patient was restored to health, without being subjected to the usual consequences of the disease, as pains in the limbs, swellings and stiffness of the joints, which appeared to run on for months, and afterwards might be renewed by any slight exposure.

When the skin has been inflamed, the eruptions increase, and in many instances run into each other, producing the appearance of a deep blush over the whole face, neck, and breast. When a moisture has been produced to some extent, there is an abatement in the deep colour of the eruption. This eruption, as before remarked, gradually subsides.

Where the eruption has been regarded as an accidental symptom, and allowed to disappear, or where it has been repelled or prevented from appearing, by the use of purges, the lancet, antimonials, &c. almost every part of the system is liable to be attacked. Several cases of mania, consequent upon repelled eruptions, occurred within my observation. Dr. Foskman informed me of another, in his own practice. In a lady it produced an inability to retain her urine. The most singular consequence which I witnessed, however, as resulting from repelled eruptions, was a case of general tetanus, which terminated fatally.—p. 292.

---

34. *Modus operandi of Poisons.* Believing, as we do, that the *modus operandi* of medicines and poisons is the same; and that from the greater energy and more distinct impression of the latter, the study of their effects may throw light upon the action of medicinal agents, we perceive in well conducted toxicological experiments, many important advantages to therapeutic medicine. The last number of the Medico-Chirurgical Review, (July, 1829,) contains an interesting review of an experimental and theoretical essay on this subject by Dr. Addison and Mr. Morgan, two practitioners of the British metropolis. As the essay has not reached us, we shall extract such parts as will give our readers an idea of their experiments, and the conclusions at which they have arrived.

We have, say the reviewers, already given the theory of Dr. Addison and Mr. Morgan, namely, that, "all poisons act on the system through the medium of nerves only." They

are surprised that former physiologists should not have admitted this theory. They had seen it exemplified in the effect of opium on a pained part, of belladonna on the iris, and in certain phenomena which take place in disease. Thus—

"A person receives a slight lacerated wound, a burn, a puncture from a spicula of wood, or a rusty nail; the irritating cause being removed from the part, all shall appear to be going on well, when suddenly symptoms of tetanus supervene, and proceed to the destruction of life: here we have, then, the mere irritation of the nerves of a small portion of the body, so deranging and involving the entire nervous system, as to give rise to one of the most formidable of all diseases, and this, so far as we know, without the slightest evidence of any thing noxious being directly applied to the brain. If, then, mere irritation, mechanical or otherwise, prove sufficient to derange the whole nervous system in this instance, where, we would ask, is the difficulty of conceiving that morbid irritation, and consequent general derangement, in the system, should result from the application of a poison, altogether independently of any absorption whatever?"—p. 65.

These are strong facts in support of the proposed theory. Again we are reminded how many poisons act too suddenly for the medium of absorption. It is said, that the exclusion of the sciatic nerve in a limb included in a tight ligature as already described, rendered that nerve incapable of performing its functions in the absence of all circulation. This is a strong objection, but one that equally applies to the experiments of our authors. Of this hereafter.

In confirmation of our authors' deductions the following experiments were instituted.

"To prove the extreme susceptibility of the inner coat of a vein, when exposed to action of a poison, the following experiments were made:—

"The jugular vein of a full grown dog (in size about that of a common harrier) was laid bare to the extent of about two inches; the circulation through the denuded vessel was then completely stopped by the application of two temporary ligatures, one of which was tied round the upper, and the other round the lower, part of the exposed vein; the vessel was then divided between the two ligatures, and the truncated extremities reconnected by means of a short brass cylinder or tube, within which was placed a portion of woorara, of the size of a grain of canary seed. In this way the continuity of the canal between the temporary ligature was preserved entire, the brass tube being inserted and tied within the mouths of the cut extremities, and consequently, allowing, on the previous impediment

to circulation being removed, a free passage of blood from the upper to the lower part of the vein; with which blood, of course, the poison in the interior of the tube would instantly be mixed, and carried through the circulation.

"Both the temporary ligatures being then removed, the accustomed circulation through the vessel was re-established; and in forty-five seconds the animal dropped on the ground, completely deprived of all power over the muscles of voluntary motion; in two minutes convulsions and respiration had entirely ceased.

"We were perfectly aware, in making this experiment, that the result might be adduced in proof of the truth of the cerebral contact, as well as of nervous communication of a poison; it was therefore, merely made for the purpose of affording a contrast to the following:

"The jugular vein of a dog, of the same size and age of the preceding, (both being from the same litter,) was exposed, and separated from its surrounding connexion, to the extent of three inches; temporary ligatures were then applied, as in the former case. A small opening was then made in the vein, immediately above the lower ligature, through which a cylinder of quill was pushed into the interior of the vessel; within this quill a piece of woorara, of the same size as used before, had been previously inserted. The vein was now again tied by a permanent ligature above the opening, through which the quill had been thrust, leaving a space of two inches and three quarters between the first upper temporary ligature and the permanent one last mentioned; the interior of the vessel between the two containing the poison which was thus prevented from coming in contact with the sides of the vessel, until washed by blood out of the quill in which it was contained. The upper temporary ligature was next removed, so as to allow the blood to pass down into the lower part of the vessel as far as the lower permanent ligature, and, consequently, to that part of the vein which contained the poison.

"Now it must be manifest, that the solution of the poison in the blood, under such circumstances, could only act upon the system through the vessels or nerves of the *vein;* for the direct entrance of the poisoned blood into the heart, &c. was prevented by the lower ligature, and we, consequently, ought to have found, in the case of venous absorption, the effect nearly the same as that which would have occurred from the introduction of the poison to any other part of the body, in which a capillary absorption, and, consequently a greater length of time was necessary to its operation; for it will be remembered, that circulation was no longer going on through the trunk of the jugular vein itself.

"It was found, however, on the contrary, that in the space of 108 seconds after the removal of the ligature, the animal dropped in convulsions, as in the former case, and expired in three minutes and a quarter.

"The poison which was used in these two cases has never been known in dogs to produce a sensible effect upon the system, in cases

of its insertion into superficial wounds of the body, in less than six minutes, and respiration usually has ceased in from a quarter of an hour to twenty-five minutes.

"Now, if we suppose that the poison of woorara produces its effect upon the system through the medium of the nerves, we can easily reconcile with that supposition the results of our two experiments: for we may attribute, in that case, the rapid operation of the poison in the last experiment, as compared with its effects upon a superficial wound of the body, to its contact with the acutely susceptible extremities of nerves distributed to the inner coat of the jugular vein itself; and we may also account for the *extreme* rapidity of its action in the first experiment, by its contact with the more extended and equally susceptible surfaces to which it must have been necessarily applied in the course of its direct circulation through the vena cava, the heart and arteries."—p. 74.

As the intimate connexion betwixt the nervous and vascular systems offer great difficulties to conclusions drawn from experiments made on either, our authors have endeavoured to obviate this impediment by attempting, as it were, to separate such connexion, and instituted experiments for the purpose.

"Two large bull-dogs, of equal size and strength, were held face to face upon a table, embracing each other, so that their breasts and necks were in contact, the animals being placed upon their sides. In this position, it will be seen that the right carotid of one dog, and the left of the other were uppermost, and that these vessels, when exposed by operation, might, while the animals were thus held together, be brought into contact. It was therefore our object to establish a connexion and circulation between these two arteries, viz. between the right carotid of one dog, and the left of the other.

"In this way, then, we established a circulation of blood from the heart of one dog, to the head of the other; and it was therefore reasonable to suppose, according to the theory of the supporters of venous absorption and cerebral contact, that the dog contributing blood to the other, would, after inoculation with a poison, be supplying his neighbor with poisoned blood, which reaching the substance of the brain, must necessarily produce the same effects in the one as in the other. This, however, was not the case; for, upon introducing the poison of nux vomica into the back of the animal, from whose carotid the blood was passing to the opposite vessel of the other dog, we found that although the usual violent effect was produced in the inoculated animal, and although that effect continued for the space of fourteen minutes, during which period a free circulation was carried on between them in the manner already mentioned, yet that not the slightest indications of the action of the poison upon the system could be observed in the other dog.

"Satisfied that the experiment had been continued long enough, the artery was then tied in the neck of the sound dog, the vessel was divided, and the sufferings of the other and expiring animal were terminated. On the following day the surviving dog continued free from all symptoms of poisoning.

"It can hardly be supposed in this case, that if the poison had been dissolved in the blood which circulated through the carotid of the poisoned dog, no portion of it would have reached the brain of the other, since it was repeatedly seen during the operation that a free current constantly passed through the vessels from one animal to the other; indeed if such had not been the case, it must be manifest that coagula would have formed in them, as well as in the brass tube by which they were connected. In the case, therefore, of sanguineous contamination and cerebral contact, we think it fair to infer that both animals ought to have been affected by the poison in nearly the same way, and at the same time, the opposite of which was proved to be the case.

"This experiment having satisfied us that the circulation of a poison through the brain was not the cause of its operation upon the body, we next proceeded to ascertain, by a nearly similar mode, whether in all cases the contamination of the blood in the veins, which supplied a poisoned part was necessary to the operation of the poison upon the system.

"Two large hounds were secured neck to neck, as in the former case, and the division and re-connexion of the jugular veins effected in a manner precisely similar to that already described in the case of the double circulation through the carotid, so that the venous blood from the head of one dog passed into the heart of the other. The animal contributing blood to the other was then inoculated on the side of the face with nux vomica, and in the usual time exhibited the usual symptoms: these continued without intermission during the space of seven minutes after the animal was first affected, the circulation being freely kept up through the artificially-connected jugulars: at the end of this period the circulation was beginning to become impeded by the formation of a small coagulum in the tube, and we therefore terminated the experiment by destroying the poisoned animal, the other dog never having shown the slightest symptoms of being poisoned. Now, if in this case the poison had been taken by the veins in a sufficient quantity to affect the distant textures to which it was carried in its course through the circulation, we do not think it possible that either dog could have escaped; at all events, if either had escaped, it would have been the poisoned animal, whose veins were prevented carrying contaminated blood from the part through the system by their connexion with those of another."—p. 86.

A double circulation was effected by connecting the lower end of the divided carotid artery of one dog with the upper

end of the carotid of another, so that each animal supplied the brain of the other; and consequently the poisoned dog received from the unpoisoned animal a supply of blood equal in quantity to that with which he was parting. The form of the connexion is shewn by a plate, a rude idea of which may be conveyed by the letter X; the division of the arteries being above the superior angle, and the left side of the letter representing the carotid of one dog, the right that of the other. The experiment was as follows.

"Two large half-bred bull dogs, each weighing about forty pounds, were the animals selected for the operation. The carotid artery of each dog having been laid bare on one side, and separated from its connections with surrounding parts to the extent of three inches, temporary ligatures were applied above and below, and the arteries were divided between them, as in a former case; the brass tubes were then attached to the extremities of the vessels, and the necks of the two animals being held and closely bound together, the divided arteries were, without the least difficulty, re-connected, and the circulation reversed.

"One of the dogs was then inoculated on the back with a concentrated preparation of strychnine, which had been found upon other occasions to produce death in these animals in about three minutes and a half.

"In three minutes and a half the inoculated animal exhibited the usual tetanic symptoms which result from the action of this poison, and died in a little less than four minutes afterwards, viz. about seven minutes from the time at which the poison was inserted, during the whole of which time a free and mutual interchange of blood between the two was clearly indicated by the strong pulsation of the denuded vessels throughout their whole course.

"The arteries were next secured by ligature, and the living was separated from the dead animal; but neither during the operation, nor at any subsequent period,* did the survivor show the slightest symptom of the action of the poison upon the system.

"From these, then, and from many other similar experiments, which it would be needless to instance, we have been led to the conclusion that all poisons, and, perhaps, indeed, all agents influence the brain and general system, through an impression made upon the sentient extremities of the nerves, and not by absorption and direct application to the brain.

"So far as we are competent to judge, the conclusion is borne out by the experiments detailed in this Essay; but if those experiments be not satisfactory to our readers, we at least indulge the hope, that what has been advanced may lead to the discovery of more satisfac-

*"This animal was killed on the following day."

tory and more conclusive evidence than has yet been adduced on this truly important question; a question, indeed, of the deepest interest, not as a mere matter of curiosity, but as involving the elucidation of many of the most prominent, and at present the most mysterious phenomena of a living body.

"If found to be correct, the principle for which I contend will not be limited to the operation of those noxious agents usually denominated poisons, but it may probably tend to the better understanding both of the causes and cure of diseases in general." 91.

Such are the experiments and conclusions of our authors in proof of their theory. We have once more to apologize for devoting so much space to the review of the Essay before us, but the vast importance of the subject, and impartial justice towards the individuals at issue, absolutely required it. We think the objections and arguments employed by Dr. Addison and Mr. Morgan against those who maintain opposite opinions, very powerful, and such as require answers, if any can be given; while their experiments are ingenious and deeply interesting, their deductions in general are natural and legitimate, and their theory on the whole as well, if not better supported, than any other which has been received. We think, however, it is by no means fully established, and that much more research is necessary to entitle it to adoption. It has been contended that a nerve deprived of circulation, as the sciatic in a former experiment, could not perform its functions; but were not the nerves of the insolated jugular veins in our author's experiments in the same condition, and besides subjected to pressure for a considerable time? According to their own shewing, these nerves could not perform their functions, and it is not easy to admit, that nerves even remote in the same vessels, must not be affected by sympathy, and must not have their functions deranged by the injuries inflicted on the divided vein and surrounding parts during the experiments. The experiments upon the whole seem to us to disprove the doctrine of poisons acting by absorption. But though we think our authors have thrown much light on the action of poisons on the system, we regret that they have left the more important matter, the prevention of such action, as they found it.

35. *Morbid appearances after death from Colica Pictonum.* By E. J. Coxe, M. D.

In the last Number of the North American Medical and Surgical Journal, Dr. Coxe has reported a fatal case of lead colic, with the postmortem examination. As this disease is becoming more frequent in the West, particularly in Cincinnati and other manufacturing towns; and as opportunities for autopsic inspection (happily) do not often occur, we shall lay before our readers, an account of the dissection of this case. The knife was wielded by Dr. Horner.

Dissection.—The abdominal muscles were drawn inwards towards the spine, and the parietes of the abdomen when struck indicated the presence of a smaller quantity of gas than usual in the hollow viscera.

The liver healthy, but of a yellowish tinge, the peri biliarii were occupied with bile, and had their parietes dyed by it. Gall-bladder empty and contracted, containing only a few drops of bile.

The spleen healthy, and about three inches in length.

Pancreas healthy.

The stomach contained a pint of gas. Its mucous coat was covered with a layer of viscid mucous, coloured yellow by bile. On removing this lamina, but little vascular injection was seen; a patch, an inch in diameter, of small ecchymosed spots, was seen near the lesser curvature; there were here and there at distant intervals, other small dots of blood, but the general complexion of the mucous coat was of a dingy or yellowish white, like old ivory. The mucous coat was generally so soft that it could be torn off by scraping with the thumb nail, and then came off in a pulpy state instead of in strips; but in the left extremity it was so soft as to suffer abrasion from much slighter causes than scratching with the nail. The duodenum and jejunum were internally of a yellow colour from the stain of their contents, which were bile and mucus mixed. The ileum was occupied by a small quantity of green purulent matter formed probably of the same substances, the colour of the bile having been altered perhaps by some acid fermentation or secretion there. The contents of the colon, which were merely enough to smear its surface, were the same as those of the jejunum.

The great intestine was collapsed, and in the highest possible state of irritation on its internal coat, which was studded with small tumours of a deep purple, or the colour of coagulated venous blood, from the quantity of blood deposited in the substance of this coat. This appearance was produced at the base of each of the rugæ or small folds of the latter, as if there had been a deposite of serum in the cellular coat which thickened it, and caused the folds to project in the form of pendulous tumours into the cavity of the gut. These tumours being blackened on the surface by the quantity of blood

deposited as aforesaid in the substance of the mucous coat, gave to the gut the appearance of beginning mortification, as in the highest forms of dysentery. This condition of purple tumours prevailed universally at the caput coli, forming the entire surface there, and for some inches upwards; it then decreased gradually in the transverse colon and vanished in the sigmoid flexture.

The muciparous glands of the colon studded its whole surface where this violent hemorrhagic irritation prevailed; they were for the most part distant only two or three lines or less from one another, and projected into the cavity of the gut. Their size was for the most part about half a line, as it is in cholera infantum. I did not perceive any ulceration in them, the disease being perhaps in too early a stage for that. They were also conspicuous in the inferior six inches of the ileum. The peritoneal surface of all the abdominal viscera had a yellow tinge from the bile. The kidneys and bladder were healthy.

The semilunar ganglion of the sympathetic was white, firm and healthy. The viscera of the thorax were healthy, excepting some slight old pleuretic adhesions.—pp. 246, 248.

---

36. *Silliman's Journal.* The distinguished Editor of the American Journal of Sciences, has lately made a powerful appeal to his countrymen, (or rather the enlightened portion of them) relative to the journal of which he is the projector and conductor. It is not his object to make it a source of pecuniary gain to himself, but of intellectual profit to the people among whom it circulates. Previously to the establishment of this most respectable periodical, not a few of the subjects which enrich its pages, were discussed in the journals of Medicine. The association was not unnatural, but in some respects inconvenient; and the Professor's design of instituting a magazine of Natural Philosophy, Chemistry, Mineralogy, Zoology, Botany and the other physical sciences, was creditable to himself, and in the execution may be made honorable to our country. It appears from the circular of which we have spoken, that the journal has never wanted able contributors, but that the patronage which it has received, has scarcely been sufficient to meet the expenses of publication. This ought not to have been the case, for such a work is imperiously wanted in America, and must not be suffered to languish. The subscription ought not only to equal the cost

of publication, but afford the Editor a substantial reward.—In every pursuit the labourer is worthy of his hire, and in the case before us, the claim, which might be, but is not asserted, is one of the most valid that we have known. The Professor has devoted to his undertaking, a great deal of time in the most valuable period of his life, and the nation is reaping the fruits of his tireless exertions. The discoveries of our countrymen are made known, both at home and abroad, the scientific improvements of Europe are disseminated among us, a love for the useful arts and sciences is generated, their practical value is pointed out, genius is animated in its enterprizes, and patriotism supplied with the means of accomplishing its benificent ends. In all this our physicians are interested in common with other classes; but they have, or ought to have, other and more special motives for encouraging a journal of the physical sciences, from the enduring and intimate relations between those sciences and the profession of Medicine. To enumerate these connexions, would be a work of supererogation, every educated and reflecting medical man must perceive them; and admit, to himself at least, that it is his duty to contribute something towards the perpetuation of a work which lends so many aids to his own science, and promises to do so much for the character of his country.

---

37. *To our readers.* The delay in the publication of this Number, has arisen from its running through those months which bring most occupation to medical men. The professional engagements of the Editor, have been such as to render it impracticable for him to prepare the matter for publication at an earlier period.

To the same cause must be ascribed the omission of the second essay on Medical Education. It will make the first article in the next Number, and appear on the first of January.

We have collected a variety of items of original intelligence, but want of time to condense and arrange them, has compelled us to postpone them to the third Number.

CONTENTS OF NO. II, VOL. III.

ESSAYS AND CASES.

ART. I.—An Account of the Autumnal Fever of Georgia, from observations made during four years, in the counties of Jones and Baldwin. By JAMES C. FINLEY, M. D. now of Cincinnati. - - - - - - - - 165

II.—An account of a fatal case of Acute Negro Consumption, with the appearances on dissection. By Dr. JOHN BENNETT, of Newport, Kentucky. - - - - - 193

III.—Memoranda of a supposed case of Ruptured Uterus consequent upon a partial adhesion of the Vaginal parieties. By RICHARD F. BARRETT, M. D. of Greensburg, Kentucky. 196

IV.—A case of Epilepsy suspended by a Burn on the sole of the foot. Communicated by Dr. H. E. GREEN, of Greenupsburgh, Kentucky. - - - - - - - 199

V.—Notes on a case of Spina Bifida. By THE EDITOR. 200

VI.—An account of a singular case of Fœtal Monstrosity. By Dr. JOHN COOK BENNETT, of McConnellsville, Ohio. 213

VII.—Medical Jurisprudence. Sequel of the case of John Birdsell, with remarks on Feigned Insanity. By THE EDITOR. 215

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

ART. VIII. Lænnec on Diseases of the Chest. Philadelphia, 1823.

Collin on the Stethoscope, Boston, 1829. , , 222

MISCELLANEOUS INTELLIGENCE.

I. ANALECTIC.

1. On the condition of the Blood and Blood-vessels in Inflammation. - - - , , , 261

2. On the Coagulation of the Blood. , , 264

3. On the Therapeutic properties of Morphine. , 264

4. On Strangury from Cantharides, and its relief. , 267

5. On the tests by which Morphine may be made known in cases of Poisoning. - - - - 268

6. On the Influence of Mercury on the functions of the Uterus. 269

7. Cataract and Glaucoma. - - - 270

8. On small doses of oil of Turpentine for the cure of sciatica and other neuralgiæ. - - - - 271
9. On the form of the face and forehead; with a theory of their formation in different ages and nations. , , 272
10. Pathology of Muscæ Volitantes. , , 274
11. Tartar on the Teeth. - , , 275
12. New mode of administering Quinine. , - 276
13. On the supposed Existence of Active Molecules in Mineral substances. - - - - 276
14. On the Physiological Effects of Oxygen Gas, upon the Animal System. - - - - - 279
15. Silver found in the viscera of a person who had used the Nitrate of Silver. . , , , 280
16. Rhubarb plant. , , . - 280
17. On the Treatment of Intermittent Fevers by the Sulphate of Quinine, applied to a denuded surface. , , 280
18. Ergot of Rye in Chronic Uterine Discharges. , 281
19. Talicotian Operation performed with success. , 282
20. Fungous Tumours from the Gum and Alveoli. , , 282
21. Small Pox. , , , , 283
22. Mercury detected in Swaim's Panacea, by Chemical analysis. 285
23. Some account of the Siamese boys, lately brought to Boston 286
24. Extract from another account of the same. , , 288
25. A case of twins united by the Umbilicus. By Joshua Martin, M. D. of Xenia, Ohio. , , , 290
26. General Phlebitis. , , , , 291
27. Varieties of Hydrocele—Modifications of the usual operations. , , , , , 292
28. On the Reduction of Herniæ. By M. Dupuytren. 293
29. Supposed Artificial Diamonds. , , , 295

II. Analytical and Original.

30. Wounds of the Heart. Prof. Coxe. , , 295
31. Respiration of Children in Reversed Presentations. By Professor Bigelow. , , , , , 299
31. Aneurism. Tying the artery on the distal side. Mr. Wardrop. 301
32. Oil of Turpentine in incarcerated Herniæ. Prof. Sewall. 303
33. Dengue. By Dr. Daniell. , , , , 304
34. Modus operandi of poisons. , , , , 305
35. Morbid appearances after death, from Colica Pictonum. By E. J. Coxe, M. D. , , , , 312
36. Silliman's Journal. , , , , , 313
37. To our Readers. , , , , , , 314